Map Unit Description (MN)

Freeborn County, Minnesota

[Data apply to the entire extent of the map unit within the survey area. Map unit and soil properties for a specific parcel of land may vary somewhat and should be determined by onsite investigation]

5--Dakota loam, 0 to 2 percent slopes

Dakota

Extent: 85 to 90 percent of the unit
Landform(s): flats on outwash plains, flats on stream terraces
Slope gradient: 0 to 2 percent
Parent material: loamy outwash over sandy and gravelly outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 4
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .28
Land capability, nonirrigated: 2s
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 8 in	loam	moderate	1.57 to 1.73 in	5.1 to 7.3
Bt -- 8 to 28 in	loam	moderate	3.01 to 3.81 in	5.1 to 7.3
2Bt,2Bw -- 28 to 50 in	gravelly coarse sand	moderately rapid	0.44 to 3.09 in	5.1 to 7.3
2C -- 50 to 60 in	gravelly sand	rapid	0.20 to 0.98 in	5.1 to 7.8

5B--Dakota loam, 2 to 6 percent slopes

Dakota

Extent: 70 to 100 percent of the unit
Landform(s): outwash plains, stream terraces
Slope gradient: 2 to 6 percent
Parent material: loamy glaciofluvial deposits over sandy and gravelly outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 4
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .28
Land capability, nonirrigated: 2e
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 8 in	loam	moderate	1.57 to 1.73 in	5.1 to 7.3
Bt -- 8 to 28 in	loam	moderate	3.01 to 3.81 in	5.1 to 7.3
2Bt,2Bw -- 28 to 50 in	gravelly coarse sand	moderately rapid	0.44 to 3.09 in	5.1 to 7.3
2C -- 50 to 60 in	gravelly sand	rapid	0.20 to 0.98 in	5.1 to 7.8

5C--Dakota loam, 6 to 14 percent slopes

Dakota

Extent: 70 to 100 percent of the unit
Landform(s): outwash plains, stream terraces
Slope gradient: 6 to 14 percent
Parent material: loamy glaciofluvial deposits over sandy and gravelly outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 4
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .28
Land capability, nonirrigated: 3e
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 8 in	loam	moderate	1.57 to 1.73 in	5.1 to 7.3
Bt -- 8 to 28 in	loam	moderate	3.01 to 3.81 in	5.1 to 7.3
2Bt,2Bw -- 28 to 50 in	gravelly coarse sand	moderately rapid	0.44 to 3.09 in	5.1 to 7.3
2C -- 50 to 60 in	gravelly sand	rapid	0.20 to 0.98 in	5.1 to 7.8

23--Skyberg silt loam

Skyberg

Extent: 75 to 95 percent of the unit
Landform(s): flats on till plains
Slope gradient: 0 to 2 percent
Parent material: silty eolian deposits over loamy till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: somewhat poorly drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .28
Land capability, nonirrigated: 2w
Hydric soil: no
Hydrologic group: C/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,E -- 0 to 14 in	silt loam	moderate	3.12 to 3.40 in	5.6 to 6.5
Btg1 -- 14 to 24 in	silty clay loam	moderate	1.77 to 1.97 in	4.5 to 5.5
2Btg1,2Btg2, -- 24 to 46 in	loam	moderately slow	3.09 to 4.19 in	5.1 to 7.3
2C -- 46 to 60 in	loam	moderately slow	1.24 to 1.79 in	7.4 to 7.8

24B--Kasson silt loam, 1 to 4 percent slopes

Kasson

Extent: 75 to 95 percent of the unit
Landform(s): till plains
Slope gradient: 1 to 4 percent
Parent material: silty eolian deposits over loamy till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: moderately well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .37
Land capability, nonirrigated: 2e
Hydric soil: no
Hydrologic group: C
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,E -- 0 to 12 in	silt loam	moderate	2.60 to 2.83 in	5.6 to 6.5
Bt1 -- 12 to 18 in	silty clay loam	moderate	1.13 to 1.39 in	4.5 to 6.0
2Bt2,2Bt3,2B -- 18 to 46 in	loam	moderately slow	4.19 to 5.31 in	5.1 to 7.3
2C -- 46 to 60 in	loam	moderately slow	1.24 to 1.79 in	7.4 to 8.4

27--Dickinson fine sandy loam, 0 to 2 percent slopes

Dickinson

Extent: 88 to 98 percent of the unit
Landform(s): outwash plains
Slope gradient: 0 to 2 percent
Parent material: loamy glaciofluvial deposits over sandy outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 3
Wind erodibility group (WEG): 3
Wind erodibility index (WEI): 86
Kw factor (surface layer) .20
Land capability, nonirrigated: 3s
Hydric soil: no
Hydrologic group: A
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 10 in	fine sandy loam	moderately rapid	1.18 to 1.48 in	5.6 to 7.3
Bw1,Bw2,Bw3 -- 10 to 26 in	fine sandy loam	moderately rapid	1.94 to 2.42 in	5.1 to 6.5
2Bw4 -- 26 to 40 in	loamy sand	rapid	1.13 to 1.42 in	5.1 to 6.5
2C1,2C2 -- 40 to 60 in	sand	rapid	0.39 to 0.79 in	5.6 to 7.3

27B--Dickinson fine sandy loam, 2 to 6 percent slopes

Dickinson

Extent: 88 to 98 percent of the unit
Landform(s): hills on moraines, knolls on moraines, hills on till plains, knolls on till plains
Slope gradient: 2 to 6 percent
Parent material: loamy glaciofluvial deposits over sandy outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 3
Wind erodibility group (WEG): 3
Wind erodibility index (WEI): 86
Kw factor (surface layer) .20
Land capability, nonirrigated: 3e
Hydric soil: no
Hydrologic group: A
Potential for frost action: moderate

Representative soil profile:			*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap	--	0 to 10 in	fine sandy loam	moderately rapid	1.18 to 1.48 in	5.6 to 7.3
Bw1,Bw2,Bw3	--	10 to 26 in	fine sandy loam	moderately rapid	1.94 to 2.42 in	5.1 to 6.5
2Bw4	--	26 to 40 in	loamy sand	rapid	1.13 to 1.42 in	5.1 to 6.5
2C1,2C2	--	40 to 60 in	sand	rapid	0.39 to 0.79 in	5.6 to 7.3

27C--Dickinson fine sandy loam, 6 to 16 percent slopes

Dickinson

Extent: 88 to 98 percent of the unit
Landform(s): knolls on till plains
Slope gradient: 6 to 16 percent
Parent material: loamy glaciofluvial deposits over sandy outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 3
Wind erodibility group (WEG): 3
Wind erodibility index (WEI): 86
Kw factor (surface layer) .20
Land capability, nonirrigated: 4e
Hydric soil: no
Hydrologic group: A
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 10 in	fine sandy loam	moderately rapid	1.18 to 1.48 in	5.6 to 7.3
Bw1,Bw2,Bw3 -- 10 to 26 in	fine sandy loam	moderately rapid	1.94 to 2.42 in	5.1 to 6.5
2Bw4 -- 26 to 40 in	loamy sand	rapid	1.13 to 1.42 in	5.1 to 6.5
2C1,2C2 -- 40 to 60 in	sand	rapid	0.39 to 0.79 in	5.6 to 7.3

35--Blue Earth silt loam

Blue Earth

Extent: 85 to 95 percent of the unit
Landform(s): flats on lake plains
Slope gradient: 0 to 1 percent
Parent material: silty coprogenic material over loamy till and/or loamy lacustrine deposits
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: common
Drainage class: very poorly drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 4L
Wind erodibility index (WEI): 86
Kw factor (surface layer) .37
Land capability, nonirrigated: 3w
Hydric soil: yes
Hydrologic group: B/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,Cg1,Cg2 -- 0 to 38 in	coprogenous silt loam	moderate	6.80 to 9.07 in	7.4 to 8.4
2Cg3 -- 38 to 60 in	silty clay loam	moderate	3.09 to 3.53 in	7.4 to 8.4

41--Estherville sandy loam, 0 to 2 percent slopes

Estherville

Extent: 85 to 98 percent of the unit
Landform(s): flats on outwash plains, flats on stream terraces
Slope gradient: 0 to 2 percent
Parent material: loamy glaciofluvial deposits over sandy and gravelly outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: somewhat excessively drained

Soil loss tolerance (T factor): 3
Wind erodibility group (WEG): 3
Wind erodibility index (WEI): 86
Kw factor (surface layer) .15
Land capability, nonirrigated: 3s
Hydric soil: no
Hydrologic group: A
Potential for frost action: low

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A -- 0 to 12 in	sandy loam	moderately rapid	1.54 to 2.13 in	5.6 to 7.3
Bw1,Bw2 -- 12 to 21 in	coarse sandy loam	moderately rapid	1.18 to 1.63 in	5.6 to 7.3
2Bw3,2C1,2C2 -- 21 to 60 in	gravelly coarse sand	rapid	0.78 to 1.56 in	6.6 to 8.4

41B--Estherville sandy loam, 2 to 6 percent slopes

Estherville

Extent: 85 to 98 percent of the unit
Landform(s): knolls on outwash plains, knolls on stream terraces
Slope gradient: 2 to 6 percent
Parent material: loamy glaciofluvial deposits over sandy and gravelly outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: somewhat excessively drained

Soil loss tolerance (T factor): 3
Wind erodibility group (WEG): 3
Wind erodibility index (WEI): 86
Kw factor (surface layer) .15
Land capability, nonirrigated: 3s
Hydric soil: no
Hydrologic group: A
Potential for frost action: low

Representative soil profile:		*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A --	0 to 12 in	sandy loam	moderately rapid	1.54 to 2.13 in	5.6 to 7.3
Bw1,Bw2 --	12 to 21 in	coarse sandy loam	moderately rapid	1.18 to 1.63 in	5.6 to 7.3
2Bw3,2C1,2C2 --	21 to 60 in	gravelly coarse sand	rapid	0.78 to 1.56 in	6.6 to 8.4

41C--Estherville sandy loam, 6 to 12 percent slopes

Estherville

Extent: 85 to 98 percent of the unit
Landform(s): knolls on outwash plains, knolls on stream terraces
Slope gradient: 6 to 12 percent
Parent material: loamy glaciofluvial deposits over sandy and gravelly outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: somewhat excessively drained

Soil loss tolerance (T factor): 3
Wind erodibility group (WEG): 3
Wind erodibility index (WEI): 86
Kw factor (surface layer) .15
Land capability, nonirrigated: 4s
Hydric soil: no
Hydrologic group: A
Potential for frost action: low

Representative soil profile:		*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A --	0 to 12 in	sandy loam	moderately rapid	1.54 to 2.13 in	5.6 to 7.3
Bw1,Bw2 --	12 to 21 in	coarse sandy loam	moderately rapid	1.18 to 1.63 in	5.6 to 7.3
2Bw3,2C1,2C2 --	21 to 60 in	gravelly coarse sand	rapid	0.78 to 1.56 in	6.6 to 8.4

41D--Estherville sandy loam, 12 to 18 percent slopes

Estherville

Extent: 90 to 98 percent of the unit
Landform(s): knolls on outwash plains, knolls on stream terraces
Slope gradient: 12 to 18 percent
Parent material: loamy glaciofluvial deposits over sandy and gravelly outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: somewhat excessively drained

Soil loss tolerance (T factor): 3
Wind erodibility group (WEG): 3
Wind erodibility index (WEI): 86
Kw factor (surface layer) .15
Land capability, nonirrigated: 6e
Hydric soil: no
Hydrologic group: A
Potential for frost action: low

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A -- 0 to 12 in	sandy loam	moderately rapid	1.54 to 2.13 in	5.6 to 7.3
Bw1,Bw2 -- 12 to 21 in	coarse sandy loam	moderately rapid	1.18 to 1.63 in	5.6 to 7.3
2Bw3,2C1,2C2 -- 21 to 60 in	gravelly coarse sand	rapid	0.78 to 1.56 in	6.6 to 8.4

42D--Salida soils, 12 to 25 percent slopes

Salida

Extent: 85 to 90 percent of the unit
Landform(s): knolls on outwash plains, knolls on stream terraces
Slope gradient: 12 to 25 percent
Parent material: sandy and gravelly outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: excessively drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 1
Wind erodibility index (WEI): 160
Kw factor (surface layer) .02
Land capability, nonirrigated: 7s
Hydric soil: no
Hydrologic group: A
Potential for frost action: low

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 10 in	gravelly coarse sand	rapid	0.89 to 1.08 in	6.1 to 8.4
C1,C2 -- 10 to 60 in	gravelly coarse sand	very rapid	1.00 to 2.00 in	7.4 to 8.4

62--Barrington silt loam, 1 to 3 percent slopes

Barrington

Extent: 90 to 98 percent of the unit
Landform(s): -- error in exists on --
Slope gradient: 1 to 3 percent
Parent material: silty glaciolacustrine deposits over loamy outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: moderately well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .37
Land capability, nonirrigated: 1
Hydric soil: no
Hydrologic group: C
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A -- 0 to 15 in	silt loam	moderate	3.29 to 3.89 in	5.6 to 7.3
Bt,Btg -- 15 to 44 in	silty clay loam	moderate	5.24 to 5.83 in	5.6 to 7.8
C1,2C2 -- 44 to 60 in	loam	moderate	1.10 to 1.73 in	6.1 to 8.4

83--Maxcreek silty clay loam, swales

Maxcreek, swales

Extent: 70 to 100 percent of the unit
Landform(s): drainageways on moraines
Slope gradient: 0 to 1 percent
Parent material: silty eolian deposits over loamy till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: frequent
Drainage class: poorly drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .24
Land capability, nonirrigated: 3w
Hydric soil: yes
Hydrologic group: B/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A1,A2 -- 0 to 21 in	silty clay loam	moderate	3.76 to 4.59 in	6.1 to 7.3
Bg1 -- 21 to 30 in	silty clay loam	moderate	1.81 to 1.99 in	6.1 to 7.3
2Bg2 -- 30 to 41 in	loam	moderate	1.87 to 2.09 in	6.6 to 7.8
2Cg -- 41 to 60 in	loam	moderate	3.21 to 3.59 in	7.4 to 7.8

84--Brownton silty clay loam

Brownton

Extent: 90 to 98 percent of the unit
Landform(s): flats on lake plains
Slope gradient: 0 to 2 percent
Parent material: silty and clayey glaciolacustrine deposits
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: poorly drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 4
Wind erodibility index (WEI): 86
Kw factor (surface layer) .32
Land capability, nonirrigated: 2w
Hydric soil: yes
Hydrologic group: C/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A1,A2,Bg1 -- 0 to 21 in	silty clay loam	slow	3.76 to 4.59 in	7.4 to 8.4
Bg2,Cg1,Cg2, -- 21 to 60 in	silty clay	slow	5.07 to 6.24 in	7.4 to 8.4

86--Canisteo clay loam

Canisteo

Extent: 85 to 95 percent of the unit
Landform(s): rims on depressions
Slope gradient: 0 to 2 percent
Parent material: loamy till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: poorly drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 4L
Wind erodibility index (WEI): 86
Kw factor (surface layer) .15
Land capability, nonirrigated: 2w
Hydric soil: yes
Hydrologic group: B/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A1,A2 -- 0 to 21 in	clay loam	moderate	3.76 to 4.59 in	7.4 to 8.4
Bg1,Bg2 -- 21 to 38 in	clay loam	moderate	2.54 to 3.22 in	7.4 to 8.4
Cg -- 38 to 60 in	loam	moderate	3.09 to 3.53 in	7.4 to 8.4

87B--Chelsea loamy fine sand, 4 to 10 percent slopes

Chelsea

Extent: 90 to 98 percent of the unit
Landform(s): knolls on outwash plains, knolls on stream terraces
Slope gradient: 4 to 10 percent
Parent material: eolian sands
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: excessively drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 2
Wind erodibility index (WEI): 134
Kw factor (surface layer) .20
Land capability, nonirrigated: 4s
Hydric soil: no
Hydrologic group: A
Potential for frost action: low

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A -- 0 to 16 in	loamy fine sand	rapid	1.61 to 2.42 in	5.6 to 7.3
E&Bt1,E&Bt2 -- 16 to 60 in	fine sand	rapid	2.62 to 3.50 in	5.1 to 6.5

94B--Terril loam, 3 to 8 percent slopes

Terril

Extent: 85 to 98 percent of the unit
Landform(s): draws on till plains
Slope gradient: 3 to 8 percent
Parent material: loamy slope alluvium
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: moderately well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .28
Land capability, nonirrigated: 2e
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:		*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A1,A2 --	0 to 31 in	loam	moderate	6.22 to 6.84 in	6.1 to 7.3
Bw1,Bw2,Bw3 --	31 to 60 in	loam	moderate	4.89 to 5.46 in	6.1 to 7.3

102B--Clarion loam, 2 to 6 percent slopes

Clarion

Extent: 85 to 95 percent of the unit
Landform(s): knolls on till plains
Slope gradient: 2 to 6 percent
Parent material: loamy till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .20
Land capability, nonirrigated: 2e
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:		*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A --	0 to 14 in	loam	moderate	2.83 to 3.12 in	5.6 to 7.3
Bw1,Bw2 --	14 to 36 in	loam	moderate	3.68 to 4.11 in	5.6 to 7.8
C --	36 to 60 in	loam	moderate	4.08 to 4.56 in	7.4 to 8.4

102C--Clarion loam, 6 to 12 percent slopes

Clarion

Extent: 85 to 95 percent of the unit
Landform(s): knolls on till plains
Slope gradient: 6 to 12 percent
Parent material: loamy till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .20
Land capability, nonirrigated: 3e
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A -- 0 to 14 in	loam	moderate	2.83 to 3.12 in	5.6 to 7.3
Bw1,Bw2 -- 14 to 36 in	loam	moderate	3.68 to 4.11 in	5.6 to 7.8
C -- 36 to 60 in	loam	moderate	4.08 to 4.56 in	7.4 to 8.4

102D--Clarion loam, 12 to 18 percent slopes

Clarion

Extent: 85 to 95 percent of the unit
Landform(s): knolls on till plains
Slope gradient: 12 to 18 percent
Parent material: loamy till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .20
Land capability, nonirrigated: 4e
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A -- 0 to 14 in	loam	moderate	2.83 to 3.12 in	5.6 to 7.3
Bw1,Bw2 -- 14 to 36 in	loam	moderate	3.68 to 4.11 in	5.6 to 7.8
C -- 36 to 60 in	loam	moderate	4.08 to 4.56 in	7.4 to 8.4

104B--Hayden loam, 2 to 6 percent slopes

Hayden

Extent: 85 to 95 percent of the unit
Landform(s): knolls on till plains
Slope gradient: 2 to 6 percent
Parent material: loamy till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 5
Wind erodibility index (WEI): 56
Kw factor (surface layer) .32
Land capability, nonirrigated: 2e
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
A,E,E&Bt -- 0 to 14 in	loam	moderate	2.83 to 3.12 in	5.6 to 7.3
Bt1,Bt2,Bt3, -- 14 to 53 in	clay loam	moderate	5.85 to 7.41 in	5.1 to 7.3
C -- 53 to 60 in	loam	moderate	0.94 to 1.27 in	7.4 to 8.4

104C--Hayden loam, 6 to 12 percent slopes

Hayden

Extent: 85 to 95 percent of the unit
Landform(s): knolls on till plains
Slope gradient: 6 to 12 percent
Parent material: loamy till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 5
Wind erodibility index (WEI): 56
Kw factor (surface layer) .32
Land capability, nonirrigated: 3e
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,E,E&Bt -- 0 to 14 in	loam	moderate	2.83 to 3.12 in	5.6 to 7.3
Bt1,Bt2,Bt3, -- 14 to 53 in	clay loam	moderate	5.85 to 7.41 in	5.1 to 7.3
C -- 53 to 60 in	loam	moderate	0.94 to 1.27 in	7.4 to 8.4

104D--Hayden loam, 12 to 18 percent slopes

Hayden

Extent: 85 to 95 percent of the unit
Landform(s): knolls on till plains
Slope gradient: 12 to 18 percent
Parent material: loamy till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 5
Wind erodibility index (WEI): 56
Kw factor (surface layer) .32
Land capability, nonirrigated: 4e
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,E,E&Bt -- 0 to 14 in	loam	moderate	2.83 to 3.12 in	5.6 to 7.3
Bt1,Bt2,Bt3, -- 14 to 53 in	clay loam	moderate	5.85 to 7.41 in	5.1 to 7.3
C -- 53 to 60 in	loam	moderate	0.94 to 1.27 in	7.4 to 8.4

106B--Lester loam, 2 to 6 percent slopes

Lester

Extent: 85 to 95 percent of the unit
Landform(s): knolls on till plains
Slope gradient: 2 to 6 percent
Parent material: loamy till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .28
Land capability, nonirrigated: 2e
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 7 in	loam	moderate	1.42 to 1.56 in	5.6 to 7.3
Bt1,Bt2,Bt3, -- 7 to 48 in	loam	moderate	6.14 to 7.78 in	5.6 to 7.3
C -- 48 to 60 in	loam	moderate	1.65 to 2.13 in	7.4 to 7.8

106C2--Lester loam, 6 to 12 percent slopes, eroded

Lester, eroded

Extent: 85 to 95 percent of the unit
Landform(s): knolls on till plains
Slope gradient: 6 to 12 percent
Parent material: loamy till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .28
Land capability, nonirrigated: 3e
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 7 in	loam	moderate	1.42 to 1.56 in	5.6 to 7.3
Bt1,Bt2,Bt3, -- 7 to 48 in	loam	moderate	6.14 to 7.78 in	5.6 to 7.3
C -- 48 to 60 in	loam	moderate	1.65 to 2.13 in	7.4 to 7.8

106D2--Lester loam, 12 to 18 percent slopes, eroded

Lester, eroded

Extent: 85 to 95 percent of the unit
Landform(s): hills on till plains, knolls on till plains, moraines on till plains
Slope gradient: 12 to 18 percent
Parent material: loamy till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .28
Land capability, nonirrigated: 4e
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 7 in	loam	moderate	1.42 to 1.56 in	5.6 to 7.3
Bt1,Bt2,Bt3, -- 7 to 48 in	loam	moderate	6.14 to 7.78 in	5.6 to 7.3
C -- 48 to 60 in	loam	moderate	1.65 to 2.13 in	7.4 to 7.8

106E--Lester loam, 18 to 24 percent slopes

Lester

Extent: 85 to 95 percent of the unit
Landform(s): hills on till plains, knolls on till plains, moraines on till plains
Slope gradient: 18 to 24 percent
Parent material: loamy till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .28
Land capability, nonirrigated: 6e
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 7 in	loam	moderate	1.42 to 1.56 in	5.6 to 7.3
Bt1,Bt2,Bt3, -- 7 to 48 in	loam	moderate	6.14 to 7.78 in	5.6 to 7.3
C -- 48 to 60 in	loam	moderate	1.65 to 2.13 in	7.4 to 7.8

110--Marna silty clay loam

Marna

Extent: 85 to 95 percent of the unit
Landform(s): drainageways on ground moraines on lake plains, flats on ground moraines on lake plains
Slope gradient: 0 to 2 percent
Parent material: clayey glaciolacustrine deposits over loamy till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: poorly drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .28
Land capability, nonirrigated: 2w
Hydric soil: yes
Hydrologic group: C/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A -- 0 to 16 in	silty clay loam	slow	2.91 to 3.55 in	6.1 to 7.3
Bg1,Bg2 -- 16 to 28 in	silty clay	slow	1.54 to 1.89 in	6.1 to 7.3
2C -- 28 to 60 in	clay loam	moderate	4.46 to 6.06 in	6.6 to 8.4

112--Harps clay loam

Harps

Extent: 85 to 98 percent of the unit
Landform(s): rises on till plains, rims on depressions on till plains
Slope gradient: 0 to 2 percent
Parent material: loamy alluvium and/or loamy till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: poorly drained
Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 4L
Wind erodibility index (WEI): 86
Kw factor (surface layer) .24
Land capability, nonirrigated: 2w
Hydric soil: yes
Hydrologic group: B/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Apk,Ak,ABk -- 0 to 23 in	clay loam	moderate	4.34 to 4.80 in	7.9 to 8.4
Bg -- 23 to 33 in	loam	moderate	1.74 to 1.94 in	7.9 to 8.4
Cg -- 33 to 60 in	loam	moderate	3.75 to 5.09 in	7.4 to 8.4

113--Webster clay loam

Webster

Extent: 85 to 98 percent of the unit
Landform(s): drainageways on till plains, flats on till plains
Slope gradient: 0 to 2 percent
Parent material: local alluvium and/or loamy till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: poorly drained
Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .24
Land capability, nonirrigated: 2w
Hydric soil: yes
Hydrologic group: B/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A,AB -- 0 to 20 in	clay loam	moderate	3.81 to 4.22 in	6.6 to 7.3
Bg1 -- 20 to 34 in	clay loam	moderate	2.20 to 2.48 in	6.6 to 7.8
Bg2,Bg3,Cg -- 34 to 60 in	clay loam	moderate	3.64 to 4.94 in	7.4 to 8.4

114--Glencoe clay loam

Glencoe

Extent: 90 to 98 percent of the unit
Landform(s): depressions on till plains, drainageways on till plains
Slope gradient: 0 to 1 percent
Parent material: loamy till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: frequent
Drainage class: very poorly drained
Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .15
Land capability, nonirrigated: 3w
Hydric soil: yes
Hydrologic group: B/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A1 -- 0 to 23 in	clay loam	moderate	4.11 to 5.02 in	6.1 to 7.8
A2,Bg -- 23 to 36 in	clay loam	moderate	2.34 to 2.86 in	6.1 to 7.8
Cg -- 36 to 60 in	clay loam	moderate	3.60 to 4.56 in	6.6 to 7.8

123--Dundas silt loam

Dundas

Extent: 85 to 95 percent of the unit
Landform(s): drainageways on till plains, rises on till plains
Slope gradient: 0 to 2 percent
Parent material: loamy till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: poorly drained
Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 5
Wind erodibility index (WEI): 56
Kw factor (surface layer) .37
Land capability, nonirrigated: 2w
Hydric soil: no
Hydrologic group: C/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,E,Btg1 -- 0 to 14 in	silt loam	moderate	3.12 to 3.40 in	5.6 to 7.3
Btg2,Btg3,Bt -- 14 to 38 in	clay loam	moderately slow	3.54 to 4.49 in	5.1 to 7.3
C -- 38 to 60 in	loam	moderately slow	3.09 to 4.19 in	7.4 to 8.4

129--Cylinder loam

Cylinder

Extent: 70 to 100 percent of the unit
Landform(s): outwash plains, stream terraces
Slope gradient: 0 to 2 percent
Parent material: loamy glaciofluvial deposits over sandy and gravelly outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: somewhat poorly drained

Soil loss tolerance (T factor): 3
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .24
Land capability, nonirrigated: 2s
Hydric soil: no
Hydrologic group: C
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A -- 0 to 15 in	loam	moderate	2.99 to 3.29 in	5.6 to 7.3
Bw1,Bw2 -- 15 to 29 in	loam	moderate	2.41 to 2.69 in	6.1 to 7.3
Bw3,2C1,2C2 -- 29 to 60 in	gravelly loamy coarse sand	very rapid	0.61 to 1.23 in	6.6 to 8.4

130--Nicollet clay loam, 1 to 3 percent slopes

Nicollet

Extent: 70 to 98 percent of the unit
Landform(s): knolls on till plains, rises on till plains
Slope gradient: 1 to 3 percent
Parent material: loamy till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: somewhat poorly drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .15
Land capability, nonirrigated: 1
Hydric soil: no
Hydrologic group: B/D
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A,AB -- 0 to 17 in	clay loam	moderate	2.88 to 3.72 in	5.6 to 7.3
Bw1,Bw2 -- 17 to 35 in	clay loam	moderate	2.72 to 3.44 in	5.6 to 7.8
BC,C -- 35 to 60 in	loam	moderate	3.47 to 4.71 in	7.4 to 8.4

134--Okoboji silty clay loam

Okoboji

Extent: 88 to 98 percent of the unit
Landform(s): depressions on lake plains, drainageways on lake plains, flats on lake plains
Slope gradient: 0 to 1 percent
Parent material: silty and clayey alluvium and/or silty and clayey lacustrine deposits
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: common
Drainage class: very poorly drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 4L
Wind erodibility index (WEI): 86
Kw factor (surface layer) .32
Land capability, nonirrigated: 3w
Hydric soil: yes
Hydrologic group: C/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A -- 0 to 26 in	silty clay loam	moderately slow	5.46 to 5.98 in	6.1 to 7.8
Bg -- 26 to 48 in	silty clay loam	moderately slow	3.97 to 4.41 in	6.6 to 7.8
Cg -- 48 to 60 in	silt loam	moderately slow	2.13 to 2.36 in	6.6 to 8.4

136--Madelia silty clay loam

Madelia

Extent: 85 to 98 percent of the unit
Landform(s): drainageways, flats, lake plains
Slope gradient: 0 to 2 percent
Parent material: silty glaciolacustrine deposits
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: poorly drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .32
Land capability, nonirrigated: 2w
Hydric soil: yes
Hydrologic group: B/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A1,A2 -- 0 to 23 in	silty clay loam	moderate	4.11 to 5.48 in	6.1 to 7.3
Bg -- 23 to 36 in	silt loam	moderate	2.08 to 2.86 in	6.6 to 7.8
Cg -- 36 to 60 in	silt loam	moderate	3.84 to 5.28 in	7.4 to 8.4

138B--Lerdal silty clay loam, 2 to 6 percent slopes

Lerdal

Extent: 85 to 95 percent of the unit
Landform(s): knolls on moraines
Slope gradient: 2 to 6 percent
Parent material: silty and clayey till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: somewhat poorly drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .37
Land capability, nonirrigated: 2e
Hydric soil: no
Hydrologic group: C/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
A,E -- 0 to 9 in	silty clay loam	moderate	1.63 to 1.99 in	5.6 to 6.5
Btg1,Btg2,Bt -- 9 to 47 in	silty clay loam	slow	4.91 to 7.18 in	4.5 to 6.0
C -- 47 to 60 in	clay loam	moderately slow	1.82 to 2.47 in	6.6 to 7.8

138C2--Lerdal silty clay loam, 6 to 15 percent slopes, eroded

Lerdal, eroded

Extent: 85 to 95 percent of the unit
Landform(s): hills on moraines, knolls on moraines
Slope gradient: 6 to 15 percent
Parent material: silty and clayey till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: somewhat poorly drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .37
Land capability, nonirrigated: 3e
Hydric soil: no
Hydrologic group: C/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
A,E -- 0 to 9 in	silty clay loam	moderate	1.63 to 1.99 in	5.6 to 6.5
Btg1,Btg2,Bt -- 9 to 47 in	silty clay loam	slow	4.91 to 7.18 in	4.5 to 6.0
C -- 47 to 60 in	clay loam	moderately slow	1.82 to 2.47 in	6.6 to 7.8

140--Spicer silt loam

Spicer

Extent: 90 to 98 percent of the unit
Landform(s): drainageways on lake plains, flats on lake plains
Slope gradient: 0 to 2 percent
Parent material: silty glaciolacustrine deposits
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: poorly drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 4L
Wind erodibility index (WEI): 86
Kw factor (surface layer) .37
Land capability, nonirrigated: 2w
Hydric soil: yes
Hydrologic group: B/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A1,A2 -- 0 to 20 in	silt loam	moderate	3.61 to 4.82 in	7.4 to 8.4
Bg -- 20 to 28 in	silt loam	moderate	1.26 to 1.73 in	7.4 to 8.4
Cg -- 28 to 60 in	silt loam	moderate	5.10 to 7.02 in	7.4 to 8.4

154--Blue Earth muck

Blue Earth

Extent: 85 to 95 percent of the unit
Landform(s): flats on lake plains
Slope gradient: 0 to 1 percent
Parent material: silty coprogenic material over loamy till and/or loamy lacustrine deposits
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: common
Drainage class: very poorly drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 2
Wind erodibility index (WEI): 134
Kw factor (surface layer) .02
Land capability, nonirrigated: 3w
Hydric soil: yes
Hydrologic group: B/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,Cg1,Cg2 -- 0 to 16 in	muck	moderately rapid	5.65 to 7.75 in	7.4 to 8.4
2Cg3,2Cg4 -- 16 to 32 in	coprogenous silt loam	moderate	2.83 to 3.78 in	7.4 to 8.4
3Cg3 -- 32 to 60 in	silt loam	moderate	5.03 to 6.71 in	7.4 to 8.4

156--Fairhaven loam, 0 to 2 percent slopes

Fairhaven

Extent: 85 to 95 percent of the unit
Landform(s): flats on outwash plains, outwash terraces on outwash plains
Slope gradient: 0 to 2 percent
Parent material: loamy glaciofluvial deposits over sandy and gravelly outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 3
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .20
Land capability, nonirrigated: 2s
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A -- 0 to 14 in	loam	moderate	3.12 to 3.40 in	5.6 to 7.3
Bw1,Bw2 -- 14 to 27 in	loam	moderate	2.52 to 2.77 in	5.6 to 7.3
2Bw3,2C -- 27 to 60 in	gravelly coarse sand	rapid	0.66 to 1.32 in	6.1 to 8.4

156B--Fairhaven loam, 2 to 6 percent slopes

Fairhaven

Extent: 85 to 95 percent of the unit
Landform(s): knolls on outwash plains, stream terraces
Slope gradient: 2 to 6 percent
Parent material: loamy glaciofluvial deposits over sandy and gravelly outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 3
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .20
Land capability, nonirrigated: 2e
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A -- 0 to 14 in	loam	moderate	3.12 to 3.40 in	5.6 to 7.3
Bw1,Bw2 -- 14 to 27 in	loam	moderate	2.52 to 2.77 in	5.6 to 7.3
2Bw3,2C -- 27 to 60 in	gravelly coarse sand	rapid	0.66 to 1.32 in	6.1 to 8.4

160--Fieldon loam

Fieldon

Extent: 90 to 98 percent of the unit
Landform(s): flats on lake plains
Slope gradient: 0 to 2 percent
Parent material: loamy glaciofluvial deposits and/or sandy and silty glaciolacustrine deposits
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: poorly drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 4L
Wind erodibility index (WEI): 86
Kw factor (surface layer) .24
Land capability, nonirrigated: 2w
Hydric soil: yes
Hydrologic group: B/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A1,A2 -- 0 to 23 in	loam	moderate	4.11 to 4.57 in	7.4 to 8.4
Bg -- 23 to 35 in	loam	moderate	1.83 to 2.07 in	7.4 to 8.4
Cg1,Cg2 -- 35 to 60 in	stratified fine sandy loam to silt loam	rapid	1.24 to 1.74 in	7.4 to 8.4

183--Dassel loam

Dassel

Extent: 90 to 98 percent of the unit
Landform(s): lake plains
Slope gradient: 0 to 1 percent
Parent material: loamy glaciofluvial deposits and/or sandy glaciolacustrine deposits
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: very poorly drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 5
Wind erodibility index (WEI): 56
Kw factor (surface layer) .24
Land capability, nonirrigated: 3w
Hydric soil: yes
Hydrologic group: A/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A1,A2 -- 0 to 23 in	loam	moderately rapid	4.11 to 5.48 in	5.6 to 7.3
Bg -- 23 to 34 in	loam	moderately rapid	1.32 to 1.87 in	5.6 to 7.3
Cg1,Cg2,Cg3, -- 34 to 60 in	stratified sand to loamy fine sand to sandy loam to fine sandy loam to silt loam	rapid	2.08 to 2.60 in	6.1 to 7.8

190--Hayfield silt loam, 1 to 3 percent slopes

Hayfield

Extent: 75 to 95 percent of the unit
Landform(s): outwash plains
Slope gradient: 1 to 3 percent
Parent material: loamy glaciofluvial deposits over sandy and gravelly outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: somewhat poorly drained

Soil loss tolerance (T factor): 3
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .28
Land capability, nonirrigated: 2s
Hydric soil: no
Hydrologic group: C
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 9 in	silt loam	moderate	1.81 to 2.17 in	5.6 to 6.5
E -- 9 to 14 in	silt loam	moderate	0.97 to 1.18 in	5.6 to 6.5
Bt1,Bt2 -- 14 to 25 in	silt loam	moderate	1.87 to 2.43 in	5.1 to 6.0
2C1,2C2 -- 25 to 60 in	coarse sand	very rapid	0.69 to 1.39 in	5.6 to 7.8

216B--Lamont fine sandy loam, 2 to 6 percent slopes

Lamont

Extent: 85 to 95 percent of the unit
Landform(s): knolls on outwash plains, stream terraces on outwash plains
Slope gradient: 2 to 6 percent
Parent material: coarse-loamy eolian deposits over eolian sands
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 4
Wind erodibility group (WEG): 3
Wind erodibility index (WEI): 86
Kw factor (surface layer) .17
Land capability, nonirrigated: 3e
Hydric soil: no
Hydrologic group: A
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 9 in	fine sandy loam	moderately rapid	1.45 to 1.63 in	5.1 to 7.3
E -- 9 to 13 in	fine sandy loam	moderately rapid	0.55 to 0.63 in	5.1 to 7.3
Bw,Bt1,Bt2 -- 13 to 40 in	fine sandy loam	moderately rapid	3.80 to 4.35 in	5.1 to 7.3
BC,C1,C2 -- 40 to 60 in	sand	rapid	1.77 to 2.17 in	5.1 to 6.5

216C--Lamont fine sandy loam, 6 to 12 percent slopes

Lamont

Extent: 85 to 95 percent of the unit

Landform(s): escarpments on outwash plains, knolls on outwash plains, stream terraces on outwash plains

Slope gradient: 6 to 12 percent

Parent material: coarse-loamy eolian deposits over eolian sands

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: none

Drainage class: well drained

Soil loss tolerance (T factor): 4

Wind erodibility group (WEG): 3

Wind erodibility index (WEI): 86

Kw factor (surface layer) .17

Land capability, nonirrigated: 4e

Hydric soil: no

Hydrologic group: A

Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 9 in	fine sandy loam	moderately rapid	1.45 to 1.63 in	5.1 to 7.3
E -- 9 to 13 in	fine sandy loam	moderately rapid	0.55 to 0.63 in	5.1 to 7.3
Bw,Bt1,Bt2 -- 13 to 40 in	fine sandy loam	moderately rapid	3.80 to 4.35 in	5.1 to 7.3
BC,C1,C2 -- 40 to 60 in	sand	rapid	1.77 to 2.17 in	5.1 to 6.5

227--Lemond loam

Lemond

Extent: 85 to 98 percent of the unit
Landform(s): draws on outwash plains, flats on outwash plains
Slope gradient: 0 to 2 percent
Parent material: loamy glaciofluvial deposits over sandy outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: poorly drained

Soil loss tolerance (T factor): 3
Wind erodibility group (WEG): 4L
Wind erodibility index (WEI): 86
Kw factor (surface layer) .28
Land capability, nonirrigated: 2w
Hydric soil: yes
Hydrologic group: A/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A -- 0 to 17 in	loam	moderately rapid	3.39 to 3.72 in	7.4 to 8.4
Bg1,Bg2 -- 17 to 30 in	sandy loam	moderately rapid	1.30 to 1.69 in	7.4 to 8.4
2C -- 30 to 60 in	sand	rapid	1.50 to 2.09 in	7.4 to 8.4

229--Waldorf silty clay loam

Waldorf

Extent: 88 to 98 percent of the unit
Landform(s): depressions on lake plains, drainageways on lake plains, flats on lake plains
Slope gradient: 0 to 1 percent
Parent material: clayey glaciolacustrine deposits
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: poorly drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 4
Wind erodibility index (WEI): 86
Kw factor (surface layer) .28
Land capability, nonirrigated: 2w
Hydric soil: yes
Hydrologic group: C/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A,AB -- 0 to 20 in	silty clay loam	moderately slow	3.61 to 5.02 in	6.1 to 7.3
Bg1,Bg2,Bg3 -- 20 to 46 in	silty clay	moderately slow	3.38 to 4.16 in	6.6 to 7.8
Cg -- 46 to 60 in	silty clay	moderately slow	2.76 to 3.03 in	7.4 to 8.4

238B--Kilkenny clay loam, 2 to 6 percent slopes

Kilkenny

Extent: 85 to 90 percent of the unit
Landform(s): knolls on till plains
Slope gradient: 2 to 6 percent
Parent material: clayey till over loamy till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: moderately well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .20
Land capability, nonirrigated: 2e
Hydric soil: no
Hydrologic group: C/D
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
A,E -- 0 to 10 in	clay loam	moderately slow	1.67 to 1.87 in	5.6 to 6.5
Bt1,Bt2,Bt3, -- 10 to 38 in	silty clay loam	moderately slow	4.25 to 5.39 in	4.5 to 6.5
C1,C2 -- 38 to 60 in	clay loam	moderate	3.03 to 3.46 in	5.6 to 7.8

238C2--Kilkenny clay loam, 6 to 12 percent slopes, eroded

Kilkenny, eroded

Extent: 85 to 90 percent of the unit
Landform(s): knolls on till plains
Slope gradient: 6 to 12 percent
Parent material: clayey till over loamy till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: moderately well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .20
Land capability, nonirrigated: 3e
Hydric soil: no
Hydrologic group: C/D
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
A,E -- 0 to 10 in	clay loam	moderately slow	1.67 to 1.87 in	5.6 to 6.5
Bt1,Bt2,Bt3, -- 10 to 38 in	silty clay loam	moderately slow	4.25 to 5.39 in	4.5 to 6.5
C1,C2 -- 38 to 60 in	clay loam	moderate	3.03 to 3.46 in	5.6 to 7.8

238D2--Kilkenny clay loam, 12 to 18 percent slopes, eroded

Kilkenny, eroded

Extent: 85 to 95 percent of the unit
Landform(s): knolls on till plains
Slope gradient: 12 to 18 percent
Parent material: clayey till over loamy till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: moderately well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .20
Land capability, nonirrigated: 4e
Hydric soil: no
Hydrologic group: C/D
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
A,E -- 0 to 10 in	clay loam	moderately slow	1.67 to 1.87 in	5.6 to 6.5
Bt1,Bt2,Bt3, -- 10 to 38 in	silty clay loam	moderately slow	4.25 to 5.39 in	4.5 to 6.5
C1,C2 -- 38 to 60 in	clay loam	moderate	3.03 to 3.46 in	5.6 to 7.8

238E--Kilkenny clay loam, 18 to 24 percent slopes

Kilkenny

Extent: 85 to 95 percent of the unit
Landform(s): till plains
Slope gradient: 18 to 24 percent
Parent material: clayey till over loamy till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .20
Land capability, nonirrigated: 6e
Hydric soil: no
Hydrologic group: C/D
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
A,E -- 0 to 10 in	clay loam	moderately slow	1.67 to 1.87 in	5.6 to 6.5
Bt1,Bt2,Bt3, -- 10 to 38 in	silty clay loam	moderately slow	4.25 to 5.39 in	4.5 to 6.5
C1,C2 -- 38 to 60 in	clay loam	moderate	3.03 to 3.46 in	5.6 to 7.8

239--Le Sueur loam, 1 to 3 percent slopes

Le Sueur

Extent: 85 to 95 percent of the unit
Landform(s): knolls on till plains, rises on till plains
Slope gradient: 1 to 3 percent
Parent material: loamy till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: somewhat poorly drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .20
Land capability, nonirrigated: 1
Hydric soil: no
Hydrologic group: B/D
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A -- 0 to 12 in	loam	moderate	2.36 to 2.83 in	5.6 to 7.3
AB,Bt1,Bt2,B -- 12 to 29 in	clay loam	moderate	2.60 to 3.29 in	5.1 to 7.3
C1,C2 -- 29 to 60 in	loam	moderate	4.61 to 5.83 in	7.4 to 8.4

247--Linder sandy loam, 0 to 3 percent slopes

Linder

Extent: 85 to 95 percent of the unit
Landform(s): flats on outwash plains, outwash terraces on outwash plains, rises on outwash plains
Slope gradient: 0 to 3 percent
Parent material: loamy glaciofluvial deposits over sandy and gravelly outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: somewhat poorly drained

Soil loss tolerance (T factor): 3
Wind erodibility group (WEG): 3
Wind erodibility index (WEI): 86
Kw factor (surface layer) .15
Land capability, nonirrigated: 2s
Hydric soil: no
Hydrologic group: B/D
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A -- 0 to 12 in	sandy loam	moderate	1.77 to 2.36 in	5.6 to 7.8
Bw1 -- 12 to 23 in	sandy loam	moderately rapid	1.65 to 1.87 in	6.1 to 7.8
Bw2,2Bw3,2C -- 23 to 60 in	gravelly loamy sand	very rapid	0.74 to 1.48 in	7.4 to 8.4

252--Marshan silt loam

Marshan

Extent: 70 to 100 percent of the unit
Landform(s): drainageways on outwash plains
Slope gradient: 0 to 2 percent
Parent material: loamy glaciofluvial deposits over sandy outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: poorly drained

Soil loss tolerance (T factor): 3
Wind erodibility group (WEG): 4L
Wind erodibility index (WEI): 86
Kw factor (surface layer) .24
Land capability, nonirrigated: 2w
Hydric soil: yes
Hydrologic group: B/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,AB -- 0 to 15 in	silt loam	moderate	2.99 to 3.59 in	5.6 to 7.3
Bg1 -- 15 to 22 in	silty clay loam	moderate	1.20 to 1.56 in	5.6 to 7.3
Bg2,Bg3 -- 22 to 32 in	loam	moderate	1.48 to 1.87 in	5.6 to 7.3
2C1,2C2 -- 32 to 60 in	gravelly coarse sand	rapid	0.56 to 1.40 in	6.1 to 7.3

253--Maxcreek silty clay loam

Maxcreek

Extent: 70 to 100 percent of the unit
Landform(s): flats on moraines
Slope gradient: 0 to 1 percent
Parent material: silty eolian deposits over loamy till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: poorly drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .24
Land capability, nonirrigated: 2w
Hydric soil: yes
Hydrologic group: B/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A1,A2 -- 0 to 21 in	silty clay loam	moderate	3.76 to 4.59 in	6.1 to 7.3
Bg1 -- 21 to 30 in	silt loam	moderate	1.81 to 1.99 in	6.1 to 7.3
2Bg2 -- 30 to 41 in	loam	moderate	1.87 to 2.09 in	6.6 to 7.8
2Cg -- 41 to 60 in	loam	moderate	3.21 to 3.59 in	7.4 to 7.8

255--Mayer loam

Mayer

Extent: 85 to 95 percent of the unit

Landform(s): rims on depressions on outwash plains, flats on outwash plains, outwash terraces on outwash plains

Slope gradient: 0 to 2 percent

Parent material: loamy glaciofluvial deposits over sandy and gravelly outwash

Restrictive feature(s): greater than 60 inches

Flooding: none

Ponding: none

Drainage class: poorly drained

Soil loss tolerance (T factor): 3

Wind erodibility group (WEG): 4L

Wind erodibility index (WEI): 86

Kw factor (surface layer) .24

Land capability, nonirrigated: 2w

Hydric soil: yes

Hydrologic group: B/D

Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A1,A2 -- 0 to 22 in	loam	moderate	4.41 to 4.85 in	7.4 to 8.4
Bg1,2Bg2 -- 22 to 38 in	loam	moderate	2.58 to 3.07 in	7.4 to 8.4
2Cg1,3Cg2,3C -- 38 to 60 in	coarse sand	rapid	0.43 to 0.87 in	7.4 to 8.4

259B--Grays silt loam, 1 to 6 percent slopes

Grays

Extent: 15 to 95 percent of the unit
Landform(s): knolls
Slope gradient: 1 to 6 percent
Parent material: silty lacustrine deposits
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: moderately well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .32
Land capability, nonirrigated: 2e
Hydric soil: no
Hydrologic group: B
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,E -- 0 to 12 in	silt loam	moderate	2.60 to 2.83 in	5.6 to 6.5
Bt1,Bt2,Bt3, -- 12 to 47 in	silt loam	moderate	6.31 to 7.01 in	5.6 to 6.5
C -- 47 to 60 in	silt loam	moderate	1.82 to 2.86 in	7.4 to 8.4

259C--Grays silt loam, 6 to 12 percent slopes

Grays

Extent: 85 to 95 percent of the unit
Landform(s): knolls
Slope gradient: 6 to 12 percent
Parent material: silty lacustrine deposits
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: moderately well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .32
Land capability, nonirrigated: 3e
Hydric soil: no
Hydrologic group: B
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,E -- 0 to 12 in	silt loam	moderate	2.60 to 2.83 in	5.6 to 6.5
Bt1,Bt2,Bt3, -- 12 to 47 in	silt loam	moderate	6.31 to 7.01 in	5.6 to 6.5
C -- 47 to 60 in	silt loam	moderate	1.82 to 2.86 in	7.4 to 8.4

282--Hanska loam

Hanska

Extent: 88 to 98 percent of the unit
Landform(s): draws on outwash plains, flats on outwash plains
Slope gradient: 0 to 2 percent
Parent material: loamy glaciofluvial deposits over sandy outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: poorly drained

Soil loss tolerance (T factor): 3
Wind erodibility group (WEG): 5
Wind erodibility index (WEI): 56
Kw factor (surface layer) .32
Land capability, nonirrigated: 2w
Hydric soil: yes
Hydrologic group: A/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,AB -- 0 to 19 in	loam	moderately rapid	3.78 to 4.16 in	6.1 to 7.8
Bg1 -- 19 to 27 in	sandy loam	moderately rapid	0.79 to 1.02 in	6.1 to 7.3
2Bg2 -- 27 to 38 in	loamy sand	rapid	0.88 to 1.10 in	6.1 to 7.8
2Cg1,2Cg2 -- 38 to 60 in	sand	rapid	0.66 to 1.10 in	6.6 to 7.8

286B--Shorewood silty clay loam, 1 to 6 percent slopes

Shorewood

Extent: 85 to 95 percent of the unit
Landform(s): knolls on lake plains, rises on lake plains, moraines
Slope gradient: 1 to 6 percent
Parent material: clayey glaciolacustrine deposits and/or clayey glaciolacustrine deposits over loamy till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: moderately well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .20
Land capability, nonirrigated: 2e
Hydric soil: no
Hydrologic group: C
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
A -- 0 to 8 in	silty clay loam	moderately slow	1.42 to 1.73 in	5.6 to 7.3
E&Bt,Bt1,Bt2 -- 8 to 40 in	silty clay loam	moderately slow	4.20 to 5.17 in	5.1 to 7.3
Cg -- 40 to 60 in	silty clay loam	moderate	2.76 to 3.15 in	6.6 to 7.8

286C2--Shorewood silty clay loam, 6 to 12 percent slopes, eroded

Shorewood, eroded

Extent: 85 to 95 percent of the unit
Landform(s): knolls, moraines
Slope gradient: 6 to 12 percent
Parent material: clayey glaciolacustrine deposits and/or clayey glaciolacustrine deposits over loamy till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: moderately well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .20
Land capability, nonirrigated: 3e
Hydric soil: no
Hydrologic group: C/D
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
A -- 0 to 8 in	silty clay loam	moderately slow	1.42 to 1.73 in	5.6 to 7.3
E&Bt,Bt1,Bt2 -- 8 to 40 in	silty clay loam	moderately slow	4.20 to 5.17 in	5.1 to 7.3
Cg -- 40 to 60 in	silty clay loam	moderate	2.76 to 3.15 in	6.6 to 7.8

287--Minnetonka silty clay loam

Minnetonka

Extent: 85 to 95 percent of the unit
Landform(s): drainageways, flats
Slope gradient: 0 to 2 percent
Parent material: silty and clayey glaciolacustrine deposits
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: poorly drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .24
Land capability, nonirrigated: 2w
Hydric soil: yes
Hydrologic group: C/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A&E -- 0 to 16 in	silty clay loam	moderately slow	2.91 to 3.55 in	5.6 to 7.3
Btg1,Btg2,Bt -- 16 to 44 in	silty clay	slow	3.63 to 5.31 in	5.6 to 7.3
Cg -- 44 to 60 in	silty clay loam	moderate	2.52 to 3.31 in	6.6 to 7.8

300--Dassel mucky loam

Dassel

Extent: 90 to 98 percent of the unit
Landform(s): lake plains
Slope gradient: 0 to 1 percent
Parent material: loamy glaciofluvial deposits and/or sandy glaciolacustrine deposits
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: frequent
Drainage class: very poorly drained

Soil loss tolerance (T factor): 3
Wind erodibility group (WEG): 5
Wind erodibility index (WEI): 56
Kw factor (surface layer) .24
Land capability, nonirrigated: 3w
Hydric soil: yes
Hydrologic group: A/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A1,A2 -- 0 to 21 in	mucky loam	moderately rapid	3.76 to 5.01 in	5.6 to 7.3
Bg -- 21 to 36 in	fine sandy loam	moderately rapid	1.80 to 2.54 in	5.6 to 7.3
Cg1,Cg2,Cg3, -- 36 to 60 in	fine sand	rapid	1.92 to 2.40 in	6.1 to 7.8

318--Mayer loam, swales

Mayer, swales

Extent: 85 to 95 percent of the unit
Landform(s): drainageways on outwash plains, stream terraces on outwash plains
Slope gradient: 0 to 2 percent
Parent material: loamy glaciofluvial deposits over sandy and gravelly outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: common
Drainage class: very poorly drained

Soil loss tolerance (T factor): 4
Wind erodibility group (WEG): 4L
Wind erodibility index (WEI): 86
Kw factor (surface layer) .24
Land capability, nonirrigated: 3w
Hydric soil: yes
Hydrologic group: B/D
Potential for frost action: high

Representative soil profile:		*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A1,A2 --	0 to 21 in	loam	moderate	4.17 to 4.59 in	7.4 to 8.4
Bg1,Bg2,2Bg3 --	21 to 43 in	loam	moderate	3.53 to 4.19 in	7.4 to 8.4
3Cg2,3Cg3 --	43 to 60 in	gravelly coarse sand	rapid	0.34 to 0.68 in	7.4 to 8.4

350--Canisteo clay loam, depressional

Canisteo, depressional

Extent: 90 to 95 percent of the unit
Landform(s): depressions, drainageways
Slope gradient: 0 to 1 percent
Parent material: loamy till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: frequent
Drainage class: very poorly drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 4L
Wind erodibility index (WEI): 86
Kw factor (surface layer) .17
Land capability, nonirrigated: 3w
Hydric soil: yes
Hydrologic group: B/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A1,A2 -- 0 to 21 in	clay loam	moderate	3.76 to 4.59 in	7.4 to 8.4
Bg1,Bg2 -- 21 to 38 in	clay loam	moderate	2.54 to 3.22 in	7.4 to 8.4
Cg -- 38 to 60 in	clay loam	moderate	3.09 to 3.53 in	7.4 to 8.4

376B--Moland silt loam, 2 to 6 percent slopes

Moland

Extent: 70 to 100 percent of the unit
Landform(s): moraines
Slope gradient: 2 to 6 percent
Parent material: silty eolian deposits over loamy till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .32
Land capability, nonirrigated: 2e
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,AB -- 0 to 13 in	silt loam	moderate	2.86 to 3.12 in	5.6 to 7.3
Bw1,Bw2 -- 13 to 20 in	silt loam	moderate	1.42 to 1.56 in	5.6 to 6.5
2Bw3,2Bw4,2B -- 20 to 52 in	loam	moderate	5.42 to 6.06 in	5.6 to 7.3
2C -- 52 to 60 in	loam	moderate	1.34 to 1.50 in	6.6 to 7.8

377--Merton silt loam, 1 to 3 percent slopes

Merton

Extent: 70 to 100 percent of the unit
Landform(s): moraines
Slope gradient: 1 to 3 percent
Parent material: silty eolian deposits over loamy till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: moderately well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .24
Land capability, nonirrigated: 1
Hydric soil: no
Hydrologic group: B/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,AB,Bw1 -- 0 to 16 in	silt loam	moderate	3.55 to 3.87 in	5.6 to 7.3
2Bw2,2Bw3 -- 16 to 23 in	silt loam	moderate	1.34 to 1.47 in	5.6 to 7.3
2BC,2C -- 23 to 60 in	loam	moderate	6.29 to 7.03 in	5.6 to 7.8

378--Maxfield silty clay loam

Maxfield

Extent: 70 to 100 percent of the unit
Landform(s): drainageways on moraines
Slope gradient: 0 to 2 percent
Parent material: silty eolian deposits over loamy till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: poorly drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .32
Land capability, nonirrigated: 2w
Hydric soil: yes
Hydrologic group: B/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
A,AB -- 0 to 18 in	silty clay loam	moderate	3.80 to 4.17 in	6.6 to 7.3
Bg -- 18 to 22 in	silty clay loam	moderate	0.71 to 0.79 in	6.1 to 7.3
2Bg,2BC,2C -- 22 to 60 in	loam	moderate	6.43 to 7.18 in	6.1 to 7.8

380--Havana silt loam

Havana

Extent: 75 to 95 percent of the unit
Landform(s): flats on till plains
Slope gradient: 0 to 2 percent
Parent material: silty eolian deposits over loamy till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: poorly drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .28
Land capability, nonirrigated: 2w
Hydric soil: yes
Hydrologic group: C/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,E,Btg1 -- 0 to 17 in	silt loam	moderate	3.72 to 4.06 in	5.6 to 6.5
Btg2 -- 17 to 24 in	silty clay loam	moderately slow	1.06 to 1.35 in	5.6 to 6.5
2Btg3,2Btg4 -- 24 to 42 in	loam	moderately slow	3.08 to 3.44 in	5.1 to 7.3
2Cg -- 42 to 60 in	loam	moderate	3.01 to 3.37 in	7.4 to 8.4

381--Newry silt loam, 1 to 3 percent slopes

Newry

Extent: 70 to 100 percent of the unit
Landform(s): moraines
Slope gradient: 1 to 3 percent
Parent material: silty eolian deposits over loamy till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: moderately well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .24
Land capability, nonirrigated: 1
Hydric soil: no
Hydrologic group: C
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 8 in	silt loam	moderate	1.89 to 2.36 in	5.6 to 6.5
E,Bt1 -- 8 to 17 in	silty clay loam	moderate	1.63 to 1.90 in	5.1 to 6.5
Bt2,2Bt3 -- 17 to 34 in	loam	moderate	2.88 to 3.22 in	5.6 to 7.3
2Bt4,2BC,2C -- 34 to 65 in	loam	moderate	5.29 to 5.91 in	6.6 to 7.8

382B--Blooming silt loam, 2 to 6 percent slopes

Blooming

Extent: 70 to 100 percent of the unit
Landform(s): till plains
Slope gradient: 2 to 6 percent
Parent material: silty eolian deposits over loamy till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .28
Land capability, nonirrigated: 2e
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A -- 0 to 10 in	silt loam	moderate	2.36 to 2.95 in	5.6 to 6.5
Bt1,Bt2 -- 10 to 22 in	silty clay loam	moderate	2.20 to 2.69 in	5.6 to 6.5
2Bt3,2Bt4,2B -- 22 to 45 in	loam	moderate	3.65 to 4.34 in	5.1 to 7.3
2Bw2,2C -- 45 to 65 in	loam	moderate	3.41 to 3.81 in	6.6 to 7.8

382C--Blooming silt loam, 6 to 12 percent slopes

Blooming

Extent: 70 to 100 percent of the unit
Landform(s): till plains
Slope gradient: 6 to 12 percent
Parent material: silty eolian deposits over loamy till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .28
Land capability, nonirrigated: 3e
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A -- 0 to 10 in	silt loam	moderate	2.36 to 2.95 in	5.6 to 6.5
Bt1,Bt2 -- 10 to 22 in	silty clay loam	moderate	2.20 to 2.69 in	5.6 to 6.5
2Bt3,2Bt4,2B -- 22 to 45 in	loam	moderate	3.65 to 4.34 in	5.1 to 7.3
2Bw2,2C -- 45 to 65 in	loam	moderate	3.41 to 3.81 in	6.6 to 7.8

386--Wacousta mucky silt loam

Wacousta

Extent: 88 to 98 percent of the unit
Landform(s): depressions on lake plains, drainageways on lake plains, flats on lake plains
Slope gradient: 0 to 1 percent
Parent material: silty lacustrine deposits
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: common
Drainage class: very poorly drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 4L
Wind erodibility index (WEI): 86
Kw factor (surface layer) .37
Land capability, nonirrigated: 3w
Hydric soil: yes
Hydrologic group: B/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 12 in	mucky silt loam	moderate	2.83 to 2.95 in	6.6 to 7.3
Bg1,Bg2 -- 12 to 26 in	silty clay loam	moderate	2.55 to 2.83 in	6.6 to 7.8
Cg -- 26 to 60 in	silt loam	moderate	6.77 to 7.45 in	7.4 to 8.4

391--Spicer silt loam, depressional

Spicer, depressional

Extent: 90 to 98 percent of the unit
Landform(s): depressions, drainageways, flats
Slope gradient: 0 to 2 percent
Parent material: silty glaciolacustrine deposits
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: common
Drainage class: very poorly drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 4L
Wind erodibility index (WEI): 86
Kw factor (surface layer) .37
Land capability, nonirrigated: 3w
Hydric soil: yes
Hydrologic group: B/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A1,A2 -- 0 to 20 in	silt loam	moderate	3.61 to 4.82 in	7.4 to 8.4
Bg -- 20 to 28 in	silt loam	moderate	1.26 to 1.73 in	7.4 to 8.4
Cg -- 28 to 60 in	silt loam	moderate	5.10 to 7.02 in	7.4 to 8.4

392--Biscay loam

Biscay

Extent: 90 to 95 percent of the unit
Landform(s): draws, flats, outwash plains
Slope gradient: 0 to 2 percent
Parent material: loamy glaciofluvial deposits over sandy and gravelly outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: poorly drained

Soil loss tolerance (T factor): 4
Wind erodibility group (WEG): 4L
Wind erodibility index (WEI): 86
Kw factor (surface layer) .28
Land capability, nonirrigated: 2w
Hydric soil: yes
Hydrologic group: B/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A1 -- 0 to 18 in	loam	moderate	3.62 to 3.98 in	6.1 to 7.8
A2,Bg1 -- 18 to 28 in	loam	moderate	1.67 to 1.87 in	6.6 to 7.8
Bg2,2Bg3 -- 28 to 42 in	sandy loam	moderately rapid	1.56 to 2.41 in	6.6 to 7.8
2Cg -- 42 to 60 in	coarse sand	rapid	0.35 to 0.71 in	7.4 to 8.4

393--Udolpho silt loam

Udolpho

Extent: 88 to 98 percent of the unit
Landform(s): flats, outwash plains
Slope gradient: 0 to 2 percent
Parent material: loamy glaciofluvial deposits over sandy and gravelly outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: poorly drained

Soil loss tolerance (T factor): 3
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .28
Land capability, nonirrigated: 2w
Hydric soil: yes
Hydrologic group: B/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,E -- 0 to 14 in	silt loam	moderate	2.83 to 3.40 in	5.6 to 7.3
Btg1 -- 14 to 21 in	silt loam	moderate	1.07 to 1.47 in	5.1 to 6.5
Btg2 -- 21 to 27 in	loam	moderate	0.94 to 1.30 in	5.1 to 6.5
2C1,2C2 -- 27 to 60 in	coarse sand	rapid	0.66 to 2.65 in	5.6 to 7.8

400--Wacousta silt loam

Wacousta

Extent: 85 to 98 percent of the unit
Landform(s): flats on lake plains
Slope gradient: 0 to 1 percent
Parent material: silty lacustrine deposits
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: frequent
Drainage class: very poorly drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 4L
Wind erodibility index (WEI): 86
Kw factor (surface layer) .37
Land capability, nonirrigated: 3w
Hydric soil: yes
Hydrologic group: B/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 12 in	silt loam	moderate	2.60 to 2.83 in	6.6 to 7.3
Bg1,Bg2 -- 12 to 26 in	silt loam	moderate	2.55 to 2.83 in	6.6 to 7.8
Cg -- 26 to 60 in	silty clay loam	moderate	6.77 to 7.45 in	7.4 to 8.4

414--Hamel loam

Hamel

Extent: 85 to 95 percent of the unit
Landform(s): drainageways on till plains
Slope gradient: 0 to 3 percent
Parent material: loamy alluvium and/or loamy colluvium and/or loamy till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: poorly drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .24
Land capability, nonirrigated: 2w
Hydric soil: yes
Hydrologic group: C/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A1,A2 -- 0 to 22 in	loam	moderate	4.41 to 5.29 in	5.6 to 7.3
Bt1,Bt2,Btg -- 22 to 45 in	clay loam	moderately slow	3.65 to 4.34 in	5.6 to 7.3
Cg -- 45 to 60 in	loam	moderate	2.09 to 2.69 in	7.4 to 7.8

444--Canisteo silty clay loam

Canisteo

Extent: 70 to 100 percent of the unit
Landform(s): flats on moraines
Slope gradient: 0 to 2 percent
Parent material: loamy till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: poorly drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 4L
Wind erodibility index (WEI): 86
Kw factor (surface layer) .20
Land capability, nonirrigated: 2w
Hydric soil: yes
Hydrologic group: B/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A1,A2 -- 0 to 29 in	silty clay loam	moderate	5.24 to 6.41 in	7.4 to 8.4
Bg1,Bg2 -- 29 to 33 in	silt loam	moderate	0.47 to 0.71 in	7.4 to 8.4
Cg -- 33 to 60 in	loam	moderate	3.75 to 4.28 in	7.4 to 8.4

447--Harpster silty clay loam

Harpster

Extent: 88 to 98 percent of the unit
Landform(s): flats on lake plains
Slope gradient: 0 to 2 percent
Parent material: silty lacustrine deposits
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: poorly drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 4L
Wind erodibility index (WEI): 86
Kw factor (surface layer) .32
Land capability, nonirrigated: 2w
Hydric soil: yes
Hydrologic group: B/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,Ak,Bk -- 0 to 18 in	silty clay loam	moderate	3.80 to 4.35 in	7.4 to 8.4
Bg,Cg1,Cg2 -- 18 to 40 in	silty clay loam	moderate	3.97 to 4.85 in	7.4 to 8.4
Cg3 -- 40 to 60 in	silt loam	moderate	3.35 to 4.33 in	7.4 to 8.4

465--Kalmarville loam, frequently flooded

Kalmarville, frequently flooded

Extent: 88 to 98 percent of the unit
Landform(s): drainageways on flood plains
Slope gradient: 0 to 1 percent
Parent material: recent alluvium
Restrictive feature(s): greater than 60 inches
Flooding: frequent
Ponding: none
Drainage class: very poorly drained

Soil loss tolerance (T factor): 3
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .28
Land capability, nonirrigated: 5w
Hydric soil: yes
Hydrologic group: B/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
A -- 0 to 39 in	loam	moderate	7.41 to 8.19 in	5.6 to 7.3
2C -- 39 to 60 in	stratified coarse sand to sand	rapid	1.25 to 1.88 in	6.6 to 7.8

517--Shandep loam

Shandep

Extent: 95 to 99 percent of the unit
Landform(s): depressions on outwash plains
Slope gradient: 0 to 1 percent
Parent material: loamy glaciofluvial deposits over sandy and gravelly outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: frequent
Drainage class: very poorly drained

Soil loss tolerance (T factor): 4
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .24
Land capability, nonirrigated: 3w
Hydric soil: yes
Hydrologic group: B/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A1,A2,A3 -- 0 to 38 in	loam	moderate	7.64 to 8.78 in	6.1 to 7.3
Bg1 -- 38 to 47 in	loam	moderate	1.47 to 1.73 in	6.1 to 7.3
2Bg2 -- 47 to 54 in	fine sandy loam	moderately rapid	0.85 to 0.99 in	6.1 to 7.8
2Cg -- 54 to 60 in	fine sand	rapid	0.12 to 0.24 in	6.1 to 8.4

518--Kalmarville loam, occasionally flooded

Kalmarville, occasionally flooded

Extent: 70 to 100 percent of the unit
Landform(s): flats on flood plains
Slope gradient: 0 to 1 percent
Parent material: loamy alluvium over sandy and gravelly alluvium
Restrictive feature(s): greater than 60 inches
Flooding: occasional
Ponding: none
Drainage class: poorly drained

Soil loss tolerance (T factor): 3
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .28
Land capability, nonirrigated: 2w
Hydric soil: yes
Hydrologic group: B/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
A -- 0 to 10 in	loam	moderate	1.87 to 2.07 in	5.6 to 7.3
C1 -- 10 to 39 in	sand	moderately rapid	3.79 to 5.24 in	6.6 to 7.8
2C2 -- 39 to 60 in	coarse sand	rapid	1.25 to 1.88 in	6.6 to 7.8

519--Klossner muck, calcareous

Klossner, calcareous

Extent: 85 to 95 percent of the unit
Landform(s): depressions on till plains, outwash plains on till plains
Slope gradient: 0 to 2 percent
Parent material: organic material over loamy glaciolacustrine deposits and/or loamy till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: frequent
Drainage class: very poorly drained

Soil loss tolerance (T factor): 1
Wind erodibility group (WEG): 2
Wind erodibility index (WEI): 134
Kw factor (surface layer) .02
Land capability, nonirrigated: 3w
Hydric soil: yes
Hydrologic group: C/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Oap -- 0 to 10 in	muck	moderately rapid	3.44 to 4.43 in	
Oa -- 10 to 26 in	muck	moderately rapid	5.65 to 7.26 in	
2A1,2A2 -- 26 to 48 in	mucky silty clay loam	moderately slow	3.09 to 4.85 in	
2Cg1,2C2 -- 48 to 80 in	clay loam	moderately slow	4.46 to 7.02 in	

521--Adrian muck

Adrian

Extent: 85 to 95 percent of the unit
Landform(s): depressions, outwash plains, lake plains
Slope gradient: 0 to 1 percent
Parent material: herbaceous organic material and/or lacustrine deposits over sandy outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: frequent
Drainage class: very poorly drained

Soil loss tolerance (T factor): 1
Wind erodibility group (WEG): 2
Wind erodibility index (WEI): 134
Kw factor (surface layer) .02
Land capability, nonirrigated: 4w
Hydric soil: yes
Hydrologic group: B/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Oa -- 0 to 18 in	muck	moderately rapid	6.34 to 8.15 in	
Lco -- 18 to 21 in	coprogenous silt loam	moderate	0.50 to 0.66 in	7.4 to 8.4
2Cg -- 21 to 60 in	gravelly coarse sand	rapid	1.17 to 3.12 in	

524--Caron muck

Caron

Extent: 85 to 95 percent of the unit
Landform(s): depressions on lake plains, moraines on lake plains, outwash plains on lake plains
Slope gradient: 0 to 1 percent
Parent material: herbaceous organic material over lacustrine deposits
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: frequent
Drainage class: very poorly drained

Soil loss tolerance (T factor): 1
Wind erodibility group (WEG): 2
Wind erodibility index (WEI): 134
Kw factor (surface layer) .02
Land capability, nonirrigated: 3w
Hydric soil: yes
Hydrologic group: C/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Oa1 -- 0 to 10 in	muck	moderately rapid	2.95 to 3.94 in	
Oe1,Oe2 -- 10 to 29 in	mucky peat	rapid	7.72 to 9.65 in	
2Cg1,2Cg2 -- 29 to 60 in	coprogenous earth	moderately slow	6.14 to 6.76 in	

525--Muskego muck

Muskego

Extent: 85 to 95 percent of the unit
Landform(s): depressions, lake plains, outwash plains
Slope gradient: 0 to 2 percent
Parent material: herbaceous organic material over coprogenic material
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: frequent
Drainage class: very poorly drained

Soil loss tolerance (T factor): 1
Wind erodibility group (WEG): 2
Wind erodibility index (WEI): 134
Kw factor (surface layer) .02
Land capability, nonirrigated: 4w
Hydric soil: yes
Hydrologic group: C/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Oa1 -- 0 to 12 in	muck	moderately rapid	4.13 to 5.31 in	
Oa2 -- 12 to 22 in	muck	moderately rapid	3.58 to 4.61 in	
Cg1,Cg2,Cg3 -- 22 to 60 in	coprogenous earth	slow	6.80 to 9.07 in	

539--Klossner muck

Klossner

Extent: 85 to 95 percent of the unit
Landform(s): depressions on outwash plains, till plains
Slope gradient: 0 to 2 percent
Parent material: organic material over loamy glaciolacustrine deposits and/or loamy till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: frequent
Drainage class: very poorly drained

Soil loss tolerance (T factor): 1
Wind erodibility group (WEG): 2
Wind erodibility index (WEI): 134
Kw factor (surface layer) .02
Land capability, nonirrigated: 3w
Hydric soil: yes
Hydrologic group: C/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Oap -- 0 to 10 in	muck	moderately rapid	3.44 to 4.43 in	
Oa -- 10 to 26 in	muck	moderately rapid	5.65 to 7.26 in	
2A1,2A2 -- 26 to 48 in	mucky silty clay loam	moderately slow	3.09 to 4.85 in	
2Cg1,2C2 -- 48 to 80 in	clay loam	moderately slow	4.46 to 7.02 in	

920B--Clarion-Estherville-Storden complex, 2 to 6 percent slopes

Clarion

Extent: 45 to 55 percent of the unit
Landform(s): knolls on till plains, moraines on till plains
Slope gradient: 2 to 6 percent
Parent material: loamy till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .20
Land capability, nonirrigated: 2e
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A -- 0 to 14 in	loam	moderate	2.83 to 3.12 in	5.6 to 7.3
Bw1,Bw2 -- 14 to 36 in	loam	moderate	3.68 to 4.11 in	5.6 to 7.8
C -- 36 to 60 in	loam	moderate	4.08 to 4.56 in	7.4 to 8.4

Estherville

Extent: 20 to 30 percent of the unit
Landform(s): knolls on till plains, moraines on till plains
Slope gradient: 2 to 6 percent
Parent material: loamy glaciofluvial deposits over sandy and gravelly outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: somewhat excessively drained

Soil loss tolerance (T factor): 3
Wind erodibility group (WEG): 3
Wind erodibility index (WEI): 86
Kw factor (surface layer) .15
Land capability, nonirrigated: 3s
Hydric soil: no
Hydrologic group: A
Potential for frost action: low

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A -- 0 to 12 in	sandy loam	moderately rapid	1.54 to 2.13 in	5.6 to 7.3
Bw1,Bw2 -- 12 to 21 in	sandy loam	moderately rapid	1.18 to 1.63 in	5.6 to 7.3
2Bw3,2C1,2C2 -- 21 to 60 in	gravelly coarse sand	rapid	0.78 to 1.56 in	6.6 to 8.4

920B--Clarion-Estherville-Storden complex, 2 to 6 percent slopes

Storden

Extent: 15 to 20 percent of the unit
Landform(s): knolls on till plains, moraines on till plains
Slope gradient: 4 to 6 percent
Parent material: loamy till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 4L
Wind erodibility index (WEI): 86
Kw factor (surface layer) .32
Land capability, nonirrigated: 2e
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 12 in	loam	moderate	2.36 to 2.60 in	7.4 to 8.4
C1 -- 12 to 32 in	loam	moderate	3.01 to 3.81 in	7.4 to 8.4
C2 -- 32 to 60 in	loam	moderate	4.19 to 5.31 in	7.4 to 8.4

920C--Clarion-Storden-Estherville complex, 6 to 12 percent slopes

Clarion

Extent: 45 to 55 percent of the unit
Landform(s): knolls on till plains, moraines on till plains
Slope gradient: 6 to 12 percent
Parent material: loamy till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .20
Land capability, nonirrigated: 3e
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A -- 0 to 14 in	loam	moderate	2.83 to 3.12 in	5.6 to 7.3
Bw1,Bw2 -- 14 to 36 in	loam	moderate	3.68 to 4.11 in	5.6 to 7.8
C -- 36 to 60 in	loam	moderate	4.08 to 4.56 in	7.4 to 8.4

Storden

Extent: 20 to 30 percent of the unit
Landform(s): knolls on till plains, moraines on till plains
Slope gradient: 6 to 12 percent
Parent material: loamy till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 4L
Wind erodibility index (WEI): 86
Kw factor (surface layer) .32
Land capability, nonirrigated: 3e
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 12 in	loam	moderate	2.36 to 2.60 in	7.4 to 8.4
C1 -- 12 to 32 in	loam	moderate	3.01 to 3.81 in	7.4 to 8.4
C2 -- 32 to 60 in	loam	moderate	4.19 to 5.31 in	7.4 to 8.4

920C--Clarion-Storden-Estherville complex, 6 to 12 percent slopes

Estherville

Extent: 15 to 20 percent of the unit
Landform(s): knolls on till plains, moraines on till plains
Slope gradient: 6 to 12 percent
Parent material: loamy glaciofluvial deposits over sandy and gravelly outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: somewhat excessively drained

Soil loss tolerance (T factor): 3
Wind erodibility group (WEG): 3
Wind erodibility index (WEI): 86
Kw factor (surface layer) .15
Land capability, nonirrigated: 4s
Hydric soil: no
Hydrologic group: A
Potential for frost action: low

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A -- 0 to 12 in	sandy loam	moderately rapid	1.54 to 2.13 in	5.6 to 7.3
Bw1,Bw2 -- 12 to 21 in	sandy loam	moderately rapid	1.18 to 1.63 in	5.6 to 7.3
2Bw3,2C1,2C2 -- 21 to 60 in	gravelly coarse sand	rapid	0.78 to 1.56 in	6.6 to 8.4

920D--Storden-Clarion-Estherville complex, 12 to 18 percent slopes

Storden

Extent: 40 to 50 percent of the unit
Landform(s): knolls on till plains, moraines on till plains
Slope gradient: 12 to 18 percent
Parent material: loamy till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 4L
Wind erodibility index (WEI): 86
Kw factor (surface layer) .32
Land capability, nonirrigated: 4e
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 12 in	loam	moderate	2.36 to 2.60 in	7.4 to 8.4
C1 -- 12 to 32 in	loam	moderate	3.01 to 3.81 in	7.4 to 8.4
C2 -- 32 to 60 in	loam	moderate	4.19 to 5.31 in	7.4 to 8.4

Clarion

Extent: 25 to 35 percent of the unit
Landform(s): knolls on till plains, moraines on till plains
Slope gradient: 12 to 18 percent
Parent material: loamy till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .20
Land capability, nonirrigated: 4e
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A -- 0 to 14 in	loam	moderate	2.83 to 3.12 in	5.6 to 7.3
Bw1,Bw2 -- 14 to 36 in	loam	moderate	3.68 to 4.11 in	5.6 to 7.8
C -- 36 to 60 in	loam	moderate	4.08 to 4.56 in	7.4 to 8.4

920D--Storden-Clarion-Estherville complex, 12 to 18 percent slopes

Estherville

Extent: 15 to 20 percent of the unit
Landform(s): knolls on till plains, moraines on till plains
Slope gradient: 12 to 18 percent
Parent material: loamy glaciofluvial deposits over sandy and gravelly outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: somewhat excessively drained

Soil loss tolerance (T factor): 3
Wind erodibility group (WEG): 3
Wind erodibility index (WEI): 86
Kw factor (surface layer) .15
Land capability, nonirrigated: 6e
Hydric soil: no
Hydrologic group: A
Potential for frost action: low

Representative soil profile:		*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A --	0 to 12 in	sandy loam	moderately rapid	1.54 to 2.13 in	5.6 to 7.3
Bw1,Bw2 --	12 to 21 in	sandy loam	moderately rapid	1.18 to 1.63 in	5.6 to 7.3
2Bw3,2C1,2C2 --	21 to 60 in	gravelly coarse sand	rapid	0.78 to 1.56 in	6.6 to 8.4

921B--Clarion-Storden loams, 2 to 6 percent slopes

Clarion

Extent: 50 to 65 percent of the unit
Landform(s): knolls on till plains
Slope gradient: 2 to 6 percent
Parent material: loamy till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .20
Land capability, nonirrigated: 2e
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A -- 0 to 14 in	loam	moderate	2.83 to 3.12 in	5.6 to 7.3
Bw1,Bw2 -- 14 to 36 in	loam	moderate	3.68 to 4.11 in	5.6 to 7.8
C -- 36 to 60 in	loam	moderate	4.08 to 4.56 in	7.4 to 8.4

Storden

Extent: 20 to 35 percent of the unit
Landform(s): knolls on till plains
Slope gradient: 4 to 6 percent
Parent material: loamy till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 4L
Wind erodibility index (WEI): 86
Kw factor (surface layer) .32
Land capability, nonirrigated: 2e
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 12 in	loam	moderate	2.36 to 2.60 in	7.4 to 8.4
C1 -- 12 to 32 in	loam	moderate	3.01 to 3.81 in	7.4 to 8.4
C2 -- 32 to 60 in	loam	moderate	4.19 to 5.31 in	7.4 to 8.4

921C--Clarion-Storden loams, 6 to 12 percent slopes

Clarion

Extent: 50 to 65 percent of the unit
Landform(s): knolls on till plains, rises on till plains
Slope gradient: 6 to 12 percent
Parent material: loamy till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .20
Land capability, nonirrigated: 3e
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A -- 0 to 14 in	loam	moderate	2.83 to 3.12 in	5.6 to 7.3
Bw1,Bw2 -- 14 to 36 in	loam	moderate	3.68 to 4.11 in	5.6 to 7.8
C -- 36 to 60 in	loam	moderate	4.08 to 4.56 in	7.4 to 8.4

Storden

Extent: 20 to 35 percent of the unit
Landform(s): knolls on till plains, rises on till plains
Slope gradient: 6 to 12 percent
Parent material: loamy till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 4L
Wind erodibility index (WEI): 86
Kw factor (surface layer) .32
Land capability, nonirrigated: 3e
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 12 in	loam	moderate	2.36 to 2.60 in	7.4 to 8.4
C1 -- 12 to 32 in	loam	moderate	3.01 to 3.81 in	7.4 to 8.4
C2 -- 32 to 60 in	loam	moderate	4.19 to 5.31 in	7.4 to 8.4

921D--Clarion-Storden loams, 12 to 18 percent slopes

Clarion

Extent: 55 to 65 percent of the unit
Landform(s): knolls on till plains
Slope gradient: 12 to 18 percent
Parent material: loamy till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .20
Land capability, nonirrigated: 4e
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A -- 0 to 14 in	loam	moderate	2.83 to 3.12 in	5.6 to 7.3
Bw1,Bw2 -- 14 to 36 in	loam	moderate	3.68 to 4.11 in	5.6 to 7.8
C -- 36 to 60 in	loam	moderate	4.08 to 4.56 in	7.4 to 8.4

Storden

Extent: 25 to 35 percent of the unit
Landform(s): knolls on till plains
Slope gradient: 12 to 18 percent
Parent material: loamy till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 4L
Wind erodibility index (WEI): 86
Kw factor (surface layer) .32
Land capability, nonirrigated: 4e
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 12 in	loam	moderate	2.36 to 2.60 in	7.4 to 8.4
C1 -- 12 to 32 in	loam	moderate	3.01 to 3.81 in	7.4 to 8.4
C2 -- 32 to 60 in	loam	moderate	4.19 to 5.31 in	7.4 to 8.4

921E--Clarion-Storden loams, 18 to 25 percent slopes

Clarion

Extent: 55 to 65 percent of the unit
Landform(s): knolls on till plains
Slope gradient: 18 to 25 percent
Parent material: loamy till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .20
Land capability, nonirrigated: 6e
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A -- 0 to 14 in	loam	moderate	2.83 to 3.12 in	5.6 to 7.3
Bw1,Bw2 -- 14 to 36 in	loam	moderate	3.68 to 4.11 in	5.6 to 7.8
C -- 36 to 60 in	loam	moderate	4.08 to 4.56 in	7.4 to 8.4

Storden

Extent: 25 to 35 percent of the unit
Landform(s): knolls on till plains
Slope gradient: 18 to 25 percent
Parent material: loamy till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 4L
Wind erodibility index (WEI): 86
Kw factor (surface layer) .32
Land capability, nonirrigated: 6e
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 12 in	loam	moderate	2.36 to 2.60 in	7.4 to 8.4
C1 -- 12 to 32 in	loam	moderate	3.01 to 3.81 in	7.4 to 8.4
C2 -- 32 to 60 in	loam	moderate	4.19 to 5.31 in	7.4 to 8.4

925--Cordova-Barbert complex

Cordova

Extent: 65 to 75 percent of the unit
Landform(s): drainageways, flats
Slope gradient: 0 to 2 percent
Parent material: loamy till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: poorly drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .24
Land capability, nonirrigated: 2w
Hydric soil: yes
Hydrologic group: C/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 9 in	loam	moderate	1.63 to 1.99 in	6.1 to 7.3
Bt1,Btg1,Btg -- 9 to 30 in	silty clay loam	moderately slow	3.13 to 3.96 in	5.1 to 6.5
Btg3,Cg1,Cg2 -- 30 to 60 in	loam	moderate	4.19 to 4.79 in	7.4 to 8.4

Barbert

Extent: 15 to 25 percent of the unit
Landform(s): depressions
Slope gradient: 0 to 1 percent
Parent material: clayey glaciolacustrine deposits
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: common
Drainage class: very poorly drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .32
Land capability, nonirrigated: 3w
Hydric soil: yes
Hydrologic group: B/D
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,E,Eg -- 0 to 18 in	silt loam	moderate	3.98 to 4.35 in	5.1 to 6.5
Btg -- 18 to 40 in	silty clay loam	moderate	4.85 to 5.29 in	5.1 to 6.5
Cg -- 40 to 60 in	silty clay loam	slow	1.97 to 2.76 in	5.1 to 7.3

940--Maxcreek-Barbert complex

Maxcreek

Extent: 60 to 70 percent of the unit
Landform(s): flats on moraines
Slope gradient: 0 to 1 percent
Parent material: silty eolian deposits over loamy till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: poorly drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .24
Land capability, nonirrigated: 2w
Hydric soil: yes
Hydrologic group: B/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A1,A2 -- 0 to 21 in	silty clay loam	moderate	3.76 to 4.59 in	6.1 to 7.3
Bg1 -- 21 to 30 in	silty clay loam	moderate	1.81 to 1.99 in	6.1 to 7.3
2Bg2 -- 30 to 41 in	loam	moderate	1.87 to 2.09 in	6.6 to 7.8
2Cg -- 41 to 63 in	loam	moderate	3.75 to 4.19 in	7.4 to 7.8

Barbert

Extent: 20 to 30 percent of the unit
Landform(s): depressions on moraines
Slope gradient: 0 to 1 percent
Parent material: clayey glaciolacustrine deposits
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: frequent
Drainage class: very poorly drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .32
Land capability, nonirrigated: 3w
Hydric soil: yes
Hydrologic group: B/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,E,Eg -- 0 to 18 in	silt loam	moderate	3.98 to 4.35 in	5.1 to 6.5
Btg -- 18 to 40 in	silty clay loam	moderate	4.85 to 5.29 in	5.1 to 6.5
Cg -- 40 to 60 in	silty clay loam	slow	1.97 to 2.76 in	5.1 to 7.3

944B--Lester-Estherville complex, 2 to 6 percent slopes

Lester

Extent: 60 to 70 percent of the unit
Landform(s): knolls on till plains, moraines on till plains
Slope gradient: 2 to 6 percent
Parent material: loamy till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .28
Land capability, nonirrigated: 2e
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 7 in	loam	moderate	1.42 to 1.56 in	5.6 to 7.3
Bt1,Bt2,Bt3, -- 7 to 48 in	loam	moderate	6.14 to 7.78 in	5.6 to 7.3
BC,C -- 48 to 60 in	loam	moderate	1.65 to 2.13 in	7.4 to 7.8

Estherville

Extent: 20 to 30 percent of the unit
Landform(s): knolls on till plains, moraines on till plains
Slope gradient: 2 to 6 percent
Parent material: loamy glaciofluvial deposits over sandy and gravelly outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: somewhat excessively drained

Soil loss tolerance (T factor): 3
Wind erodibility group (WEG): 3
Wind erodibility index (WEI): 86
Kw factor (surface layer) .15
Land capability, nonirrigated: 3s
Hydric soil: no
Hydrologic group: A
Potential for frost action: low

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A -- 0 to 12 in	sandy loam	moderately rapid	1.54 to 2.13 in	5.6 to 7.3
Bw1,Bw2 -- 12 to 21 in	coarse sandy loam	moderately rapid	1.18 to 1.63 in	5.6 to 7.3
2Bw3,2C1,2C2 -- 21 to 60 in	gravelly coarse sand	rapid	0.78 to 1.56 in	6.6 to 8.4

944C2--Lester-Estherville complex, 6 to 12 percent slopes, eroded

Lester, eroded

Extent: 60 to 70 percent of the unit
Landform(s): knolls on till plains, moraines on till plains
Slope gradient: 6 to 12 percent
Parent material: loamy till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .28
Land capability, nonirrigated: 3e
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 7 in	loam	moderate	1.42 to 1.56 in	5.6 to 7.3
Bt1,Bt2,Bt3, -- 7 to 48 in	loam	moderate	6.14 to 7.78 in	5.6 to 7.3
BC,C -- 48 to 60 in	loam	moderate	1.65 to 2.13 in	7.4 to 7.8

Estherville

Extent: 20 to 30 percent of the unit
Landform(s): knolls on till plains, moraines on till plains
Slope gradient: 6 to 12 percent
Parent material: loamy glaciofluvial deposits over sandy and gravelly outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: somewhat excessively drained

Soil loss tolerance (T factor): 3
Wind erodibility group (WEG): 3
Wind erodibility index (WEI): 86
Kw factor (surface layer) .15
Land capability, nonirrigated: 4s
Hydric soil: no
Hydrologic group: A
Potential for frost action: low

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A -- 0 to 12 in	sandy loam	moderately rapid	1.54 to 2.13 in	5.6 to 7.3
Bw1,Bw2 -- 12 to 21 in	coarse sandy loam	moderately rapid	1.18 to 1.63 in	5.6 to 7.3
2Bw3,2C1,2C2 -- 21 to 60 in	gravelly coarse sand	rapid	0.78 to 1.56 in	6.6 to 8.4

944D2--Lester-Estherville complex, 12 to 18 percent slopes, eroded

Lester, eroded

Extent: 60 to 70 percent of the unit
Landform(s): hills, knolls, moraines
Slope gradient: 12 to 18 percent
Parent material: loamy till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .28
Land capability, nonirrigated: 4e
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 7 in	loam	moderate	1.42 to 1.56 in	5.6 to 7.3
Bt1,Bt2,Bt3B -- 7 to 48 in	loam	moderate	6.14 to 7.78 in	5.6 to 7.3
BC,C -- 48 to 60 in	loam	moderate	1.65 to 2.13 in	7.4 to 7.8

Estherville

Extent: 20 to 30 percent of the unit
Landform(s): hills, knolls, moraines
Slope gradient: 12 to 18 percent
Parent material: loamy glaciofluvial deposits over sandy and gravelly outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: somewhat excessively drained

Soil loss tolerance (T factor): 3
Wind erodibility group (WEG): 3
Wind erodibility index (WEI): 86
Kw factor (surface layer) .15
Land capability, nonirrigated: 6e
Hydric soil: no
Hydrologic group: A
Potential for frost action: low

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A -- 0 to 12 in	sandy loam	moderately rapid	1.54 to 2.13 in	5.6 to 7.3
Bw1,Bw2 -- 12 to 21 in	coarse sandy loam	moderately rapid	1.18 to 1.63 in	5.6 to 7.3
2Bw3,2C1,2C2 -- 21 to 60 in	gravelly coarse sand	rapid	0.78 to 1.56 in	6.6 to 8.4

944E--Lester-Estherville complex, 18 to 24 percent slopes

Lester

Extent: 55 to 65 percent of the unit
Landform(s): hills, knolls, moraines
Slope gradient: 18 to 24 percent
Parent material: loamy till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: well drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .28
Land capability, nonirrigated: 6e
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 7 in	loam	moderate	1.42 to 1.56 in	5.6 to 7.3
Bt1,Bt2,Bt3, -- 7 to 48 in	loam	moderate	6.14 to 7.78 in	5.6 to 7.3
BC,C -- 48 to 60 in	loam	moderate	1.65 to 2.13 in	7.4 to 7.8

Estherville

Extent: 25 to 35 percent of the unit
Landform(s): hills, knolls, moraines
Slope gradient: 18 to 24 percent
Parent material: loamy glaciofluvial deposits over sandy and gravelly outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: somewhat excessively drained

Soil loss tolerance (T factor): 3
Wind erodibility group (WEG): 3
Wind erodibility index (WEI): 86
Kw factor (surface layer) .15
Land capability, nonirrigated: 6e
Hydric soil: no
Hydrologic group: A
Potential for frost action: low

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A -- 0 to 12 in	sandy loam	moderately rapid	1.54 to 2.13 in	5.6 to 7.3
Bw1,Bw2 -- 12 to 21 in	coarse sandy loam	moderately rapid	1.18 to 1.63 in	5.6 to 7.3
2Bw3,2C1,2C2 -- 21 to 60 in	gravelly coarse sand	rapid	0.78 to 1.56 in	6.6 to 8.4

1027--Udorthents, wet substratum

Udorthents, wet substratum

Extent: 100 to 100 percent of the unit
Landform(s): fills
Slope gradient: 0 to 2 percent
Parent material:
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class:

Soil loss tolerance (T factor):
Wind erodibility group (WEG):
Wind erodibility index (WEI):
Kw factor (surface layer)
Land capability, nonirrigated:
Hydric soil: unranked
Hydrologic group:
Potential for frost action:

Representative soil profile:

Texture	Permeability	Available water capacity	pH

1029--Pits, gravel

Pits, gravel

Extent: 100 to 100 percent of the unit
Landform(s): gravel pits, outwash plains
Slope gradient: 0 to 45 percent
Parent material: sandy and gravelly outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class:

Soil loss tolerance (T factor):
Wind erodibility group (WEG):
Wind erodibility index (WEI):
Kw factor (surface layer)
Land capability, nonirrigated:
Hydric soil: unranked
Hydrologic group:
Potential for frost action:

Representative soil profile:

Texture	Permeability	Available water capacity	pH

1033--Udipsamments

Udipsamments

Extent: 100 to 100 percent of the unit
Landform(s): bars, beaches
Slope gradient: 0 to 6 percent
Parent material: sandy outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: excessively drained

Soil loss tolerance (T factor):
Wind erodibility group (WEG):
Wind erodibility index (WEI):
Kw factor (surface layer)
Land capability, nonirrigated:
Hydric soil: unranked
Hydrologic group:
Potential for frost action: low

Representative soil profile:

Texture	Permeability	Available water capacity	pH

1034--Fluvaquents, loamy

Fluvaquents, loamy

Extent: 100 to 100 percent of the unit
Landform(s): beaches, lakes, ponds
Slope gradient: 0 to 2 percent
Parent material:
Restrictive feature(s): greater than 60 inches
Flooding: frequent
Ponding: none
Drainage class:

Soil loss tolerance (T factor):
Wind erodibility group (WEG):
Wind erodibility index (WEI):
Kw factor (surface layer)
Land capability, nonirrigated: 5w
Hydric soil: yes
Hydrologic group:
Potential for frost action:

Representative soil profile:

Texture	Permeability	Available water capacity	pH

1055--Aquents and Histosols, ponded

Aquents, ponded

Extent: 40 to 50 percent of the unit
Landform(s): depressions
Slope gradient: 0 to 1 percent
Parent material: loamy
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: frequent
Drainage class: very poorly drained

Soil loss tolerance (T factor):
Wind erodibility group (WEG):
Wind erodibility index (WEI):
Kw factor (surface layer)
Land capability, nonirrigated: 8w
Hydric soil: yes
Hydrologic group:
Potential for frost action:

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*

Histosols, ponded

Extent: 40 to 50 percent of the unit
Landform(s): depressions
Slope gradient: 0 to 1 percent
Parent material: herbaceous organic material
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: frequent
Drainage class: very poorly drained

Soil loss tolerance (T factor):
Wind erodibility group (WEG):
Wind erodibility index (WEI):
Kw factor (surface layer)
Land capability, nonirrigated: 8w
Hydric soil: yes
Hydrologic group:
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*

1078--Udorthents

Udorthents

Extent: 100 to 100 percent of the unit
Landform(s): fills, leveled land
Slope gradient: 0 to 6 percent
Parent material:
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class:

Soil loss tolerance (T factor):
Wind erodibility group (WEG):
Wind erodibility index (WEI):
Kw factor (surface layer)
Land capability, nonirrigated:
Hydric soil: unranked
Hydrologic group:
Potential for frost action:

Representative soil profile:

Texture	Permeability	Available water capacity	pH

1805--Blue Earth variant silt loam

Blue Earth, variant

Extent: 85 to 95 percent of the unit
Landform(s): flats on lake plains, flats on outwash plains
Slope gradient: 0 to 1 percent
Parent material: silty coprogenic material over loamy till and/or silty lacustrine deposits
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: frequent
Drainage class: very poorly drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 4L
Wind erodibility index (WEI): 86
Kw factor (surface layer) .32
Land capability, nonirrigated: 3w
Hydric soil: yes
Hydrologic group: B/D
Potential for frost action: high

Representative soil profile:

		Texture	Permeability	Available water capacity	pH
Ap,Cg1	0 to 16 in	coprogenous silt loam	moderate	2.91 to 3.87 in	7.4 to 8.4
Cg2	16 to 25 in	coprogenous very fine sandy loam	moderate	1.09 to 1.45 in	7.4 to 8.4
2Cg3,2Cg4	25 to 47 in	loamy very fine sand	moderately rapid	1.30 to 1.73 in	7.4 to 7.8
3Cg5	47 to 60 in	silty clay loam	moderate	2.34 to 2.73 in	7.4 to 7.8

1806--Lerdal silty clay loam, silty substratum, 0 to 2 percent slopes

Lerdal, silty substratum

Extent: 85 to 95 percent of the unit
Landform(s): flats
Slope gradient: 0 to 2 percent
Parent material: silty and clayey glaciolacustrine deposits and/or silty and clayey till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: somewhat poorly drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .37
Land capability, nonirrigated: 2w
Hydric soil: no
Hydrologic group: C/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
A,E -- 0 to 11 in	silty clay loam	moderately slow	1.98 to 2.43 in	5.1 to 6.5
Btg1,Btg2,Bt -- 11 to 35 in	silty clay	slow	3.12 to 3.84 in	4.5 to 6.0
C -- 35 to 60 in	silty clay loam	moderately slow	3.97 to 4.71 in	6.6 to 7.8

1806B--Lerdal silty clay loam, silty substratum, 2 to 10 percent slopes

Lerdal, silty substratum

Extent: 85 to 95 percent of the unit
Landform(s): knolls on moraines
Slope gradient: 2 to 10 percent
Parent material: silty and clayey glaciolacustrine deposits and/or silty and clayey till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: somewhat poorly drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .37
Land capability, nonirrigated: 3e
Hydric soil: no
Hydrologic group: C/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,E -- 0 to 11 in	silty clay loam	moderately slow	1.98 to 2.43 in	5.1 to 6.5
Btg1,Btg2,Bt -- 11 to 35 in	silty clay	slow	3.12 to 3.84 in	4.5 to 6.0
C -- 35 to 60 in	silty clay loam	moderately slow	3.97 to 4.71 in	6.6 to 7.8

1818--Adrian muck, deep

Adrian, deep

Extent: 85 to 95 percent of the unit
Landform(s): depressions, lake plains, outwash plains, till plains
Slope gradient: 0 to 1 percent
Parent material: herbaceous organic material and/or lacustrine deposits over sandy outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: frequent
Drainage class: very poorly drained

Soil loss tolerance (T factor): 1
Wind erodibility group (WEG): 2
Wind erodibility index (WEI): 134
Kw factor (surface layer) .02
Land capability, nonirrigated: 4w
Hydric soil: yes
Hydrologic group: B/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Oa -- 0 to 30 in	muck	moderately rapid	10.47 to 13.46 in	
Lco -- 30 to 33 in	coprogenous silt loam	moderate	0.57 to 0.76 in	7.4 to 8.4
2Cg -- 33 to 60 in	sand	rapid	0.80 to 2.14 in	

L13A--Klossner muck, depressional, 0 to 1 percent slopes

Klossner, drained

Extent: 65 to 85 percent of the unit
Landform(s): depressions on moraines
Slope gradient: 0 to 1 percent
Parent material: herbaceous organic material over loamy glaciofluvial deposits
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: frequent
Drainage class: very poorly drained

Soil loss tolerance (T factor): 1
Wind erodibility group (WEG): 2
Wind erodibility index (WEI): 134
Kw factor (surface layer) .02
Land capability, nonirrigated: 3w
Hydric soil: yes
Hydrologic group: B/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Op -- 0 to 10 in	muck	moderately rapid	3.44 to 4.72 in	
Oa -- 10 to 26 in	muck	moderately rapid	5.65 to 7.75 in	
2A1 -- 26 to 36 in	mucky silty clay loam	moderate	2.17 to 2.56 in	
2A2 -- 36 to 48 in	silty clay loam	moderate	2.20 to 2.69 in	
2Cg -- 48 to 80 in	loam	moderate	4.78 to 6.06 in	

L83A--Webster clay loam, 0 to 2 percent slopes

Webster

Extent: 50 to 85 percent of the unit
Landform(s): flats on moraines, swales on moraines
Slope gradient: 0 to 2 percent
Parent material: till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: poorly drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .24
Land capability, nonirrigated: 2w
Hydric soil: yes
Hydrologic group: B/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A -- 0 to 19 in	clay loam	moderate	3.59 to 3.97 in	6.6 to 7.3
Bg -- 19 to 26 in	clay loam	moderate	1.13 to 1.28 in	6.6 to 7.8
BCg,Cg -- 26 to 60 in	loam	moderate	5.08 to 6.43 in	7.4 to 8.4

L84A--Glencoe clay loam, depressional, 0 to 1 percent slopes

Glencoe, depressional

Extent: 75 to 100 percent of the unit
Landform(s): depressions on moraines
Slope gradient: 0 to 1 percent
Parent material: till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: frequent
Drainage class: very poorly drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .24
Land capability, nonirrigated: 3w
Hydric soil: yes
Hydrologic group: B/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A -- 0 to 24 in	clay loam	moderate	4.32 to 5.28 in	6.1 to 7.8
ABg -- 24 to 35 in	clay loam	moderate	1.98 to 2.43 in	6.1 to 7.8
Bg -- 35 to 48 in	loam	moderate	1.95 to 2.47 in	6.6 to 7.8
Cg -- 48 to 60 in	loam	moderate	1.77 to 2.24 in	7.4 to 8.4

L85A--Nicollet clay loam, 1 to 3 percent slopes

Nicollet

Extent: 70 to 95 percent of the unit
Landform(s): flats on moraines, rises on moraines
Slope gradient: 1 to 3 percent
Parent material: till
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: somewhat poorly drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .24
Land capability, nonirrigated: 1
Hydric soil: no
Hydrologic group: B/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A -- 0 to 17 in	clay loam	moderate	2.88 to 3.72 in	5.6 to 7.3
Bw,Bg -- 17 to 33 in	clay loam	moderate	2.42 to 3.07 in	5.6 to 7.3
Bg -- 33 to 36 in	clay loam	moderate	0.41 to 0.52 in	7.4 to 8.4
Cg -- 36 to 60 in	loam	moderate	3.60 to 4.56 in	7.4 to 8.4

M-W--Water, miscellaneous

Water, miscellaneous

Extent: 100 percent of the unit
Landform(s):
Slope gradient:
Parent material:
Restrictive feature(s): greater than 60 inches
Flooding:
Ponding:
Drainage class:

Soil loss tolerance (T factor):
Wind erodibility group (WEG):
Wind erodibility index (WEI):
Kw factor (surface layer)
Land capability, nonirrigated:
Hydric soil:
Hydrologic group:
Potential for frost action:

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*

Map Unit Description (MN)

Freeborn County, Minnesota

W--Water

Water

Extent: 100 percent of the unit
Landform(s):
Slope gradient:
Parent material:
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class:

Soil loss tolerance (T factor):
Wind erodibility group (WEG):
Wind erodibility index (WEI):
Kw factor (surface layer)
Land capability, nonirrigated:
Hydric soil: unranked
Hydrologic group:
Potential for frost action:

Representative soil profile:

Texture	*Permeability*	*Available water capacity*	*pH*

This report provides a semitabular listing of some soil and site properties and interpretations that are valuable in communicating the concept of a map unit. The report also provides easy access to the commonly used conservation planning information in one place. The major soil components in each map unit are displayed. Minor components may be displayed if they are included in the database and are selected at the time the report is generated.